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Term Analysis of the First Spectrum of Rhenium (Re I)

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With the aid of new data on wavelengths, intensities, and the Zeeman effect, the structural analysis of the first spectrum of rhenium (Re I) has been extended to include 2,764 lines that are explained as transitions among 282 atomic energy levels. This analysis accounts for 90 percent of the total observed intensity, although only 64 percent of the total number of lines has been classified. From the Zeeman effect, magnetic splitting factors have been derived for 75 percent of the levels, and nearly 40 percent of these have been grouped into designated spectral terms ascribed to specific configurations of electrons. The normal state of neutral Re atoms is $5d^5\,6s^2\;{}^6S_{2\frac{1}{2}}$, and the ionization limit is approximately 63530 kaysers or 7.87 electron volts.

1. Introduction

For a quarter century the atomic emission spectra of rhenium have been investigated intermittently by several researchers, and now a full report on the present status of the analysis and interpretation of the first spectrum of rhenium (Re I) is presented in this paper.

In 1931 the first useful description (2500.59 to 8797.6 A) and partial analysis of Re I was published by Meggers [1],[3] who classified about 500 lines as combinations of 115 atomic energy levels, 24 of which were assigned spectral term symbols. In a second paper [2] the spectrum was extended to longer waves (10639.44 A), and 5 additional metastable energy levels were reported. In 1947 the analysis of Re I was considerably extended by Klinkenberg [3] who used new data in the MIT Wavelength Tables [4], principally between 2500 and 2000 A, and increased the number of levels to 172 and the number of classified lines to 1,171. In a second paper [5], he increased the number of levels to 221, the number of classified lines to 1,624, and identified many terms (of even parity) with electron configurations. Since 1946 Velasco has also worked independently on Re I; in 1949 he [6] pointed out some discrepancies between his levels and Klinkenberg's, and in 1952 he [7] reported measurements between 2000 and 1500 A, revised some levels reported by Meggers [1], classified about 150 lines with 29 new levels, and correlated many spectral terms (even and odd) with electron configurations.

The above mentioned contributions to the interpretation of Re I were all made without the benefit of Zeeman effect; they were based entirely on wave numbers and intensities, and were guided by comparisons with other analyzed spectra, and by quantum theoretical predictions. In order to make further progress with the analysis of Re I it was felt necessary to make new descriptions of the arc and spark spectra of rhenium and to investigate the Zeeman effect.

A new description of the arc and spark spectra of rhenium was supplied by Meggers [8], who used solid electrodes of pure rhenium and obtained wavelengths and intensities for approximately 6,000 lines of which about 4,200 were assigned to Re I. These data, supplemented by those of Velasco [7] from arc spectrograms made by Catalán with a vacuum spectrograph at Princeton University, comprise an improved list of Re I lines ranging in wavelength from about 1700 A in the extreme ultraviolet to 12000 A, the photographic limit in the infrared. This list was used by Klinkenberg in making this final attack on the Re I spectrum; new levels were found and the relative values of all atomic energy levels were recalculated.

The splitting of spectral lines by magnetic fields (Zeeman effect) is extremely useful in analyses of complex spectra because it reveals (by the number of components) the inner-quantum numbers (J) of both levels, and often identifies (by the splitting factors, g) the term types (L) and multiplicities (r). At the Massachusetts Institute of Technology the Bitter magnet [9] was constructed and operated for this purpose, and the MIT wavelength project [10] included Zeeman spectrograms of rhenium. These spectrograms were made just before World War II and during the war years they were in the possession of graduate students who had no opportunity to measure and interpret them. They were finally loaned to the National Bureau of Standards where they were examined and stored. In 1949, through the courtesy of G. R. Harrison, Meggers made greatly superior Zeeman spectrograms of rhenium in the Spectroscopy Laboratory at MIT. These were hand-measured at the Bureau, the wavelengths of Zeeman components were computed, and some resolved patterns gave a start on the analysis of Re II in 1950. At that time the record books were turned over to Catalán and Velasco, who fully exploited the Zeeman data for the determination of J-values and calculation of g-factors for energy levels in the first two spectra of rhenium, Re I and Re II. A preliminary report [11] on these results indicated that g-values had been derived for 164 Re I levels, and for 39 Re II levels. The combined efforts of three research groups in accumulating and analyzing spectral data for Re I have improved and extended the analysis to include 2764 classified lines arising from permitted transitions among 51 low even, 20 high even, and 211 middle odd levels, with g-values evaluated for 75 percent of all levels.

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[3] Figures in brackets indicate the literature references on page 326.

The details concerning established levels and classified lines are presented in tables below, and are followed by a discussion of the experimental and theoretical structure of the Re I spectrum.

2. Atomic Energy Levels of Re I

Before this analysis could proceed it was necessary to convert the newly measured wavelengths to vacuum wave numbers, and for this purpose the Edlén formula for the dispersion of standard air [12] was used as recommended in 1952 by the Joint Commission for Spectroscopy [13]. Then all previously discovered atomic energy levels of Re I were recalculated with the new data so that old and new levels would be consistent. Many new lines in the list could be immediately classified as transitions between known levels, and nearly all levels adopted previously [3,5] were confirmed. The exceptions are $\mathit{3341}_{1/2}$, $\mathit{3389}_{1/2}$, $\mathit{3481}_{5/2}$, $\mathit{3575}_{1/2}$, $\mathit{3641}_{5/2}$, $\mathit{3801}_{1/2}$, $\mathit{3955}_{9/2}$, $\mathit{5366}_{7/2}$, $\mathit{5626}_{1/2}$, and $\mathit{5829}_{11/2}$, four of which had been characterized as questionable before [5]. All the rejected levels belong to the odd group. The analysis was continued with the remaining unclassified Re I lines with the result that 12 low even levels, 3 high even levels, and 46 odd levels could be added to those previously found; they are reported for the first time in this paper. In addition, 11 of the odd levels proposed by Velasco [7], and 8 qualified as provisional by Klinkenberg [5], have been confirmed. The total number of established atomic energy levels resulting from this analysis of the Re I spectrum is now 282 which is the sum of 51 low even, 20 high even, and 211 odd levels. These energy levels are listed in table 1 in which successive columns display an abbreviated designation, the level value (in K=cm^{-1}), the inner quantum number J, the magnetic splitting factor g, and the origin of the level. The abridged designation of levels is according to the system adopted by Klinkenberg [3] in 1947: "The odd and high even levels are given by the first 4 digits, the ground levels (which are more widely spaced) by the first 3 digits; however where ambiguities occur an alteration by one or more units of the last figure is allowed. The odd terms are printed in italics".

The J-values have been fixed either by the Zeeman effect or by the combinations, and a number of the J-values in earlier papers have been corrected in this analysis: for level 261 the value 5/2 has been changed to 3/2; for level 278, 5/2 to 3/2; for level *3991*, 9/2 to 11/2; for level *4081*, 3/2 to 1/2; for level *4614*, 3/2 to 1/2; for level *4637*, 11/2 to 9/2; for level *5097*, 3/2 to 5/2; for level *5221*, 3/2? to 5/2; and for level *5482*, 3/2 to 5/2. An important contribution of the Zeeman effect has been the *absolute* determination of the J-values of the levels for lines whose magnetic splitting has been completely observed and resolved. In all previous analyses of the Re I spectrum the J-values were assumed to be those required by theory for the identified terms and the remainder were then derived from the level combinations according to the selection rule that $\Delta J=0$ or ± 1 for permitted transitions.

The Zeeman-effect spectrograms were made with magnetic field intensity of 81,000 oersteds, the field intensity being determined from the splitting of impurity lines of Ag, Cu, Mg, and Ca. Their measurement was complicated by hyperfine structures, and by dissymmetries usually due to partial Paschen-Back effect. These difficulties are illustrated respectively in the two small samples of Re I spectra reproduced in figure 1. The upper strip of spectrum shows the resonance lines ^6S–$^6P°$; the Zeeman components are complex and wide with hyperfine structure except when the magnetic quantum number is 1/2. The lower strip displays a portion of the Re I spectrum in which most Zeeman patterns are so badly perturbed that they cannot be interpreted without great difficulty. When the classification of these lines is examined in table 2 it is obvious that the asymmetrical Zeeman patterns arise from strong Paschen-Back interaction of the closely spaced even levels designated as $5097_{5/2}$, $5098_{7/2}$, $5099_{9/2}$ and $5103_{3/2}$, $5104_{5/2}$, $5105_{1/2}$. Often even fully resolved, symmetrical Zeeman patterns of Re lines are not easy to interpret (apart from J-values) because the splitting factors (g) usually depart more or less from Landé values. In fact these g-factors prove that besides configuration interaction the electron coupling in Re is neither LS nor JJ, but usually intermediate; this will be discussed in connection with spectral term designations. A few of the levels in table 1 have two g-values owing to incomplete observations of the Zeeman patterns; in these cases the second possible value of g is given in parentheses. Magnetic splitting factors, g, are now known for more than 75 percent of all known levels of Re I.

In table 1 the column headed "Origin" shows where levels previously known have been reported for the first time, according to the code explained at the end of that table. This gives a view of the progress from 1931 to 1956 in searching for atomic energy levels in the first spectrum of rhenium. Finally figure 2 gives a survey of the positions of presently known Re I energy levels grouped according to J-values.

3. Spectral Lines of Re I

Attempts to describe the spectra of rhenium, including the magnetic splitting (Zeeman effect), are plagued by relatively coarse hyperfine structure exhibited by most of the lines, many of which have 6 components (see fig. 1). This makes it difficult to estimate relative intensities and in some cases hyperfine structure is easily mistaken for fine structure. For lines that show flag patterns a mean wavelength was recorded, but when hyperfine components appear as two lines or groups of lines it is impossible to distinguish them from close fine structures. A good example of the latter are the two close levels 27384.40 and 27385.20 K, both having $J=\frac{1}{2}$, which are retained in tables 1 and 2 as individual atomic energy levels although there is evidence that they are hyperfine levels. Another example is $\mathit{44703.37}_{5/2}$ whose combinations are

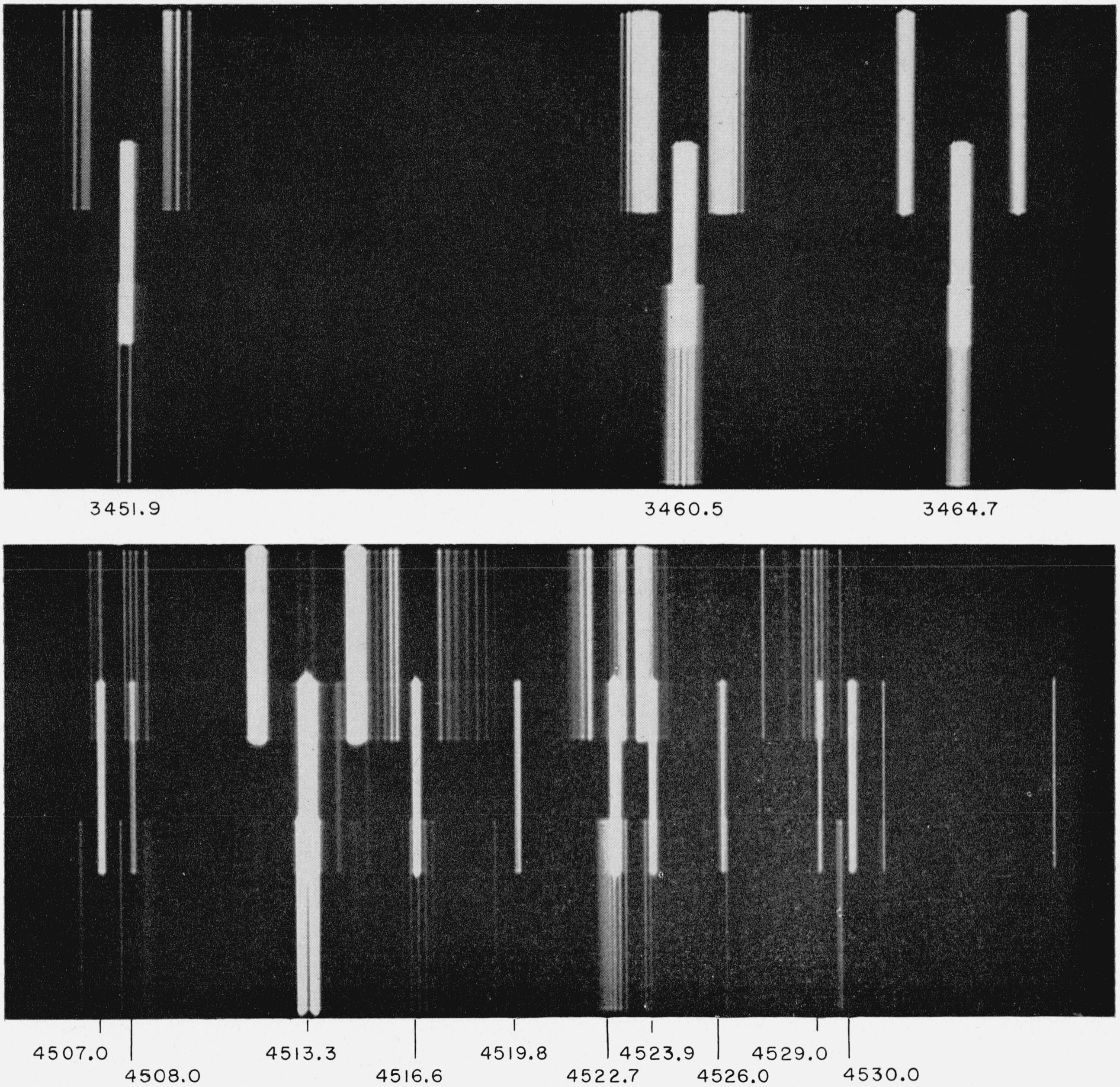

FIGURE 1. *Zeeman patterns of* Re I *lines at 81,000 oersteds.*

Upper: σ components—perpendicular polarization.
Center: Arc spectrum without magnetic field.
Lower: π components—parallel polarization.
Numbers: Wavelengths of Re I lines in angstroms.

usually observed as widened doublets which possibly represent perturbed or mutilated hyperfine multiplets (see note 28 at end of table 2). Several combinations of level $15165.89_{1/2}$ are double (4394, 4417, 4565 A) but this seems to be caused by the involved odd levels, because most combinations of $151_{1/2}$ are single (see note 24 at end of table 2). As compensation for the complication introduced by hyperfine structure it may be said that the width and shading of flag patterns confirm this analysis qualitatively and have aided in the assignment of levels to electron configurations and term groups. Detailed proof of this statement is omitted in this paper which deals primarily with fine structure and therefore ignores hyperfine structure (excepting the complications mentioned above). Information about the resolution, width, and shading of flag patterns in rhenium spectra is given in Meggers' recent description of these spectra [8] which provided most of the material for this analysis.

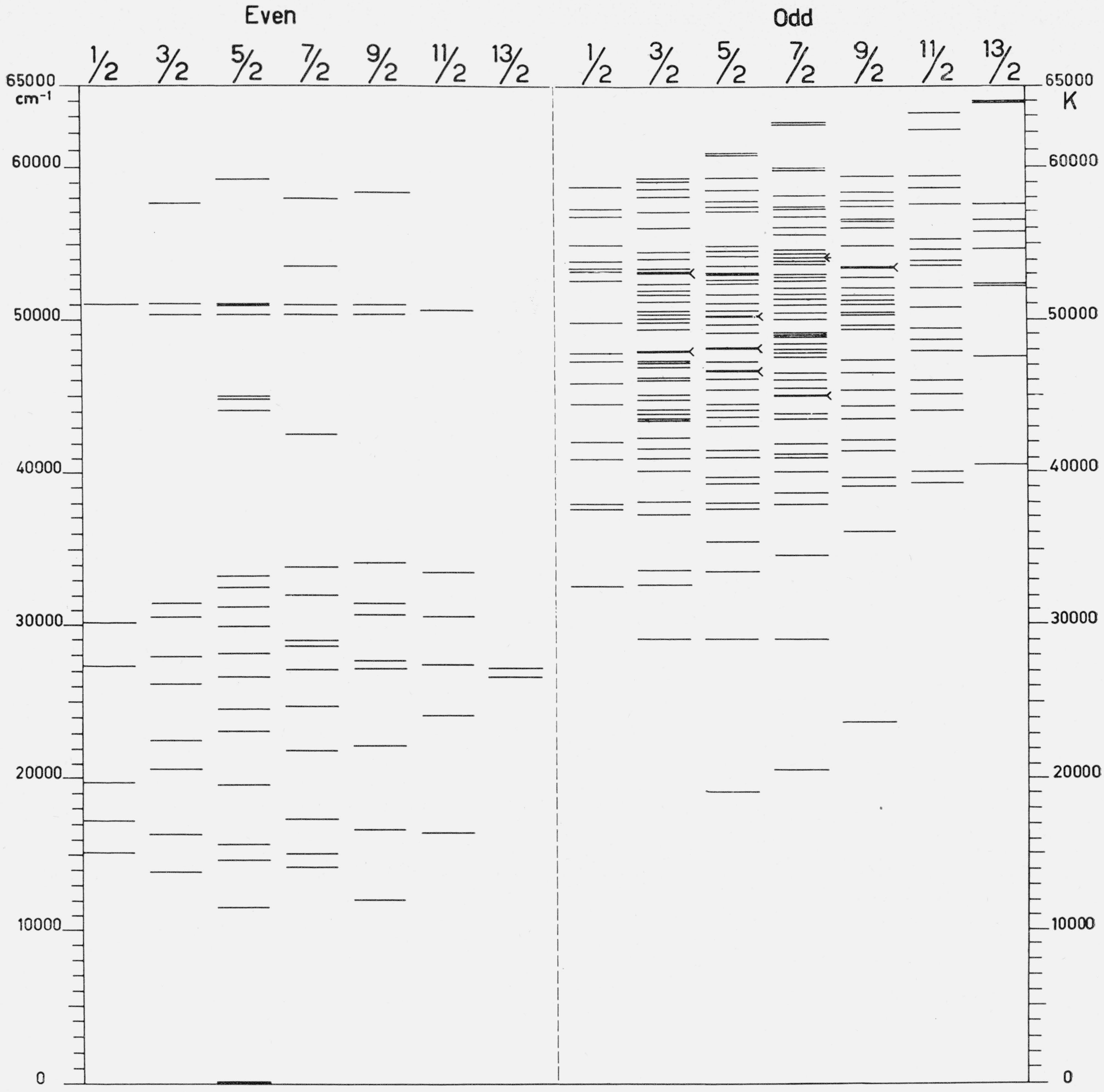

FIGURE 2. *Energy-level diagram of* Re I.

Abscissae: *J*-values
Ordinates: kaysers, 1 K = 1 cm⁻¹

Table 2 contains all relevant data on the classified lines of Re I, including estimated relative intensities, measured wavelengths, derived vacuum wave numbers, observed Zeeman patterns, transitions between designated atomic energy levels, differences between wave numbers derived from measured wavelengths and those calculated from atomic energy levels, and notes that are appended to the table.

In table 2, column 4, the observed displacements of magnetic components are given in Lorentz units, the π components being inclosed by parentheses and followed by the σ components. When there are more than one component of either type the strongest is shown in bold face. Many unresolved Zeeman patterns are accompanied by letters A, B, C, or D which were adopted for conveniently indicating standard types according to Back and Landé [14]. The letter A means that the strongest π components have the greatest displacement whereas the displacement of the strongest σ components is the

average of all. B means that the strongest π components are least and the strongest σ components most displaced. C indicates that the strongest π and σ are both least displaced. The letter D applies to relatively weak lines for which no σ components were observed, so that it is impossible to distinguish between types B and C. A dagger (†) means that the pattern is unsymmetrical, and an asterisk (*) that the observed Zeeman pattern belongs to a Re II line. P-B indicates that a perturbation of Paschen-Back type has been observed.

The total number of classified lines of Re I in the region 1700 to 12000 A is now 2,764. Of these 116 are doubly and 5 are trebly classified, because the resolving power was inadequate to separate them. There are 6 cases where two observed lines have been classified as one transition, because the doubling is believed to be caused by perturbed hyperfine structures. Thus for some purposes the employed resolving power was too small and for others it was too large. Some of the complications that arose on account of hyperfine structure were mentioned in the preceding section.

A few lines classified as Re I were observed only on spark spectrograms measured in the Zeeman laboratory. Some of these have also been classified as Re II lines, and in these complex spectra it is certainly probable that occasionally Re I and Re II lines coincide within the limits of spectrographic resolving power employed. In any case such lines appearing in table 2 represent permitted transitions between established energy levels of Re I within reasonable limits of tolerance for these transitions.

Excepting lines of very short wavelengths, near 2000 A for which an error of 0.01 A corresponds to 0.25 K, the difference between observed and calculated wave number (O–C in table 2) of classified Re I lines rarely exceeds 0.3 K. For 563 lines in table 2 this difference is naught; for the remainder it is $\pm 0.06_5$ K and for the total number the average difference is ± 0.05 K. Recalling that on account of hyperfine structure many Re lines have widths of the order of 2 K, this small average departure of calculated from observed wave number of classified Re I must be regarded as satisfactory; it gives assurance that the mean wavelength of the wide lines is very near the actual center of gravity.

In the recent description of the arc spectrum of rhenium by Meggers [8] there are 4,143 lines that may be ascribed to Re I. Of these 2,660 are classified in this analysis (table 2). Although this number of classified Re I lines is only 64 percent of the total number it accounts for 90 percent of the total observed intensity. The remaining unclassified lines, with few exceptions, are of low intensity, between 40 and 1. This is obvious from table 3 which lists all the unclassified Re I lines having intensity 50 or more. Only two of these are visible; the remainder are all in the ultraviolet short of 3000 A. This suggests that some high energy levels of Re I are still unknown, and that further progress in the analysis of this spectrum might be made if an improved description in the extreme ultraviolet could be obtained.

4. Interpretation of the Re I Levels

Previous interpretations [1, 2, 3, 5, 6, 7] of certain Re I levels were made without the aid of Zeeman effect; they were guided by the simple interval and intensity rules of multiplet structure and by comparison with the known terms of Mn I. Now despite the large number of observed Zeeman patterns and computed g-factors, there are still only relatively few Re I levels that can be interpreted with certainty; 61 percent (171 out of 282) of the established levels must be characterized as "miscellaneous". However, compared with the earlier identifications, definite progress has resulted from the Zeeman-effect data despite many departures of g-factors from the Landé values associated with conventional spectral-term notation. We are pleased to report that most of the previous interpretations have been confirmed by the g-factors found, even those of $d^5\,s^2\,{}^4P$ which had been questioned [6]. The Re I levels, terms, and interpretations are displayed in table 4.

Because manganese, technetium, and rhenium are homologous chemical elements their spectra are bound to show similarities. Indeed, such similarities, when first discovered in Re and Tc, were regarded as proof that these elements are really homologs of Mn. In each case the spectra are highly complex because there are 7 optical electrons, and spectral terms of 4 different multiplicities (doublets, quartets, sextets, and octets) occur. Because the d-shell of electrons is usually half (or more) filled the terms are partly regular, partly inverted, and sometimes partially inverted. The principal differences between the three spectra, in general, are exhibited by larger term intervals for heavier atoms, and by the relative stability of various configurations of electrons.

In general, the structure of the low even system of Re I is comparable to that of Mn I [15]. The relative positions of the Re I lowest terms from $d^5\,s^2$ and $d^6\,s$ are very similar to those of Mn I, and quite different from those of Tc I [16]. However, in Re I the terms from $d^5\,s^2$ are somewhat better known than in Mn I. This is due partly to the fact that intersystem combinations are much stronger in Re I because of departures from LS coupling, so that many doublet levels could be found in Re I that were unknown in Mn I. The second reason is that the mutual electrostatic interactions in Re I are rather different from those in Mn I. This is immediately obvious from the fact that in the $d^5\,s^2$ configuration ${}^4P$ is below ${}^4G$ in Re I, whereas the opposite obtains in Mn I. When taking this into account one finds from theoretical consideration [17] that the doublet terms should be depressed with respect to the quartets in Re I as compared with Mn I. An analogous situation exists in the spectra of W I versus Cr I.

The same $d^6\,s$ terms are found in Re I and Mn I excepting two doublets above 38000 K in the latter. The new 13/2 level 270 in Re I has much stronger combinations than the previously found 13/2 level 263 that was interpreted [5] as ${}^4H$. This, and the fact that the new level had a g-value much nearer to the Landé value for ${}^4H_{13/2}$ led us to identify level

270 as $(5d^6\,6s)^4\mathrm{H}_{13/2}$. This is certainly the most plausible interpretation because there are only three 13/2 levels anticipated in the low even system, namely $d^5\,s^2\,{}^2\mathrm{I}_{13/2}$, $d^6\,s\,{}^4\mathrm{H}_{13/2}$, and $d^6\,s\,{}^2\mathrm{I}_{13/2}$. The lower level 263 is readily explained as the first ${}^2\mathrm{I}$ whereas the other ${}^2\mathrm{I}$ presumably lies too high to be detected. In view of recent progress with the analysis of Mn I [15] the earlier interpretation [5] of four Re I levels above 22000 K as $5d^7\,{}^4\mathrm{F}$ cannot be maintained; it is concluded that no d^7 levels have been found in Re I. In fact all the known low even levels of Re I have been assigned to $d^5\,s^2$ or $d^6\,s$. Besides the identifications mentioned above, additional assignments of conventional term symbols have been suggested by R. E. Trees, who calculated approximately the relative positions of known and anticipated spectral terms; these calculations will be reported in a separate paper by Trees.

A brief discussion of the Re I level $273_{1/2}$ seems justified because of the trouble caused by hyperfine structure. At first two levels were detected at nearly the same value, viz., 27384.40 and 27385.20 K. Generally these combined with the same odd levels, thus yielding 10 pairs of very close lines of comparable intensities. In three more cases only a somewhat broadened line was observed with a wave number intermediate between the calculated values. In some other cases only the transition to 273′ or 273″ was present and because 273″ had two combinations with odd 5/2 levels while 273′ had none, the latter was regarded as a 1/2 level and the former as a 3/2, with the possible interpretations $d^6\,s\,{}^4\mathrm{P}_{1/2}$ and $d^5\,s^2\,{}^4\mathrm{D}_{3/2}$. All the lines involved were relatively weak. For 273″ no Zeeman-effect measurements were available, but for 273′ there was a measurement of two π components of 4369.64 A ($273'_{1/2}$–$5026_{3/2}$). This splitting pointed to a g-value of either 2.396 or 0.072, the first being compatible with the interpretation of 273′ as ${}^4\mathrm{P}_{1/2}$ and the second with ${}^4\mathrm{D}_{1/2}$. Upon remeasurement of the Zeeman spectrogram the two π components were found to be symmetrical around the wavelength 4369.70 A, just the average of the wavelengths 4369.64 and 4369.77 A reported [8] for Re I. Hence we must conclude that these lines are hyperfine structure components of one and the same transition and that 273′ and 273″ are hyperfine structure sublevels of one electronic level having $J=1/2$. In tables 1 and 2, it was found practical to retain the notation 273′ and 273″, but in table 4 a single level 27384.80 K is interpreted as $d^6\,s\,{}^4\mathrm{D}_{1/2}$.

The departures of the observed g-factors from their Landé values are often very large but in opposite directions, so that the g-sums are not very irregular even when some levels of the same J-value are not known. There are a few instances of g-sharing which suggest a strong mutual perturbation of two levels with exclusion of the rest. The most conspicuous example is $d^5\,s^2\,{}^4\mathrm{G}_{7/2}$ (with $\Delta g=+0.17$) and $d^6\,s\,{}^4\mathrm{D}_{7/2}$ (with $\Delta g=-0.17$). Furthermore, we have the two levels $d^6\,s\,{}^6\mathrm{D}_{1/2}$ ($\Delta g=-0.81$) and $(d^6\,s)^4\mathrm{D}_{1/2}$ ($\Delta g=+0.98$). Also two levels with $J=13/2$ have opposite but equal g-departures ($d^5\,s^2\,{}^2\mathrm{I}_{13/2}$ has $\Delta g=+0.02$ and $d^6\,s\,{}^4\mathrm{H}_{13/2}$ has $\Delta g=-0.02$), so that the remaining unknown 13/2 level ($d^6\,s\,{}^2\mathrm{I}_{13/2}$) should have a normal g-factor. Attention was called [11] to large negative deviations of g-values for Re I terms that converge to $d^5\,s\,{}^5\mathrm{S}_2$ in Re II, which lacks 0.29 Lorentz unit from Landé value for that term. The present data are insufficient to test the sum rule for g-values of any configuration in Re I.

The first identifications in the low even system served as a basis for the interpretation of a number of odd levels by means of the observed intensities of the combinations. When g-values became available these identifications could be extended, and verified by comparison with the parent structure of Re II. For example the low ${}^6\mathrm{G}^\circ$ from $d^5\,s({}^5\mathrm{G})6p$ of Re I was not expected where found, but it is confirmed by the low ${}^5\mathrm{G}$ from $d^5\,s$ found in Re II by Meggers, Catalán, and Sales [18].

From comparison of the transitions $d^4\,s\,{}^6\mathrm{D}_{9/2}$–$d^4\,p\,{}^6\mathrm{F}^\circ_{11/2}$ in V I, Nb I, and Ta I, and $(d^6\,s)^6\mathrm{D}_{9/2}$–$d^6\,p\,{}^6\mathrm{F}^\circ_{11/2}$ in Mn I and Tc I, it could be inferred that the corresponding transition in Re I should have a wave number of about 35000 K. In agreement herewith $d^6\,p\,{}^6\mathrm{F}^\circ_{11/2}$ has been located in Re I at 45082.63 K, and the line in question at 33328.06 K. Beyond completing this ${}^6\mathrm{F}^\circ$ term no further identifications in the $d^6\,p$ configuration of Re I have been attempted. Excepting $d^5\,sp\,{}^8\mathrm{P}^\circ$ and ${}^6\mathrm{P}^\circ$ the low odd terms of Re I belong to $d^4\,s^2p$. The terms ${}^6\mathrm{D}$ and ${}^6\mathrm{F}$ derived from the parent term $d^4\,s^2\,{}^5\mathrm{D}$ of Re II (which is about 14000 K above the ground state $d^5({}^6\mathrm{S})s\,{}^7\mathrm{S}$) have been identified. In accordance with this assignment the levels with small J-values are the lower ones, whereas the terms derived from $d^6\,{}^5\mathrm{D}$ should be inverted, as they are.

Seventeen high even levels of Re I could readily be interpreted in connection with the known low Re II levels [18]. The previous interpretation [3] of level $5097_{3/2}$ as $d^5\,s({}^7\mathrm{S})d\,{}^6\mathrm{D}$ has been abandoned. The levels $5103_{3/2}$ and $5104_{5/2}$ turned out to belong to one multiple term because they show partial Paschen-Back effects of transitions to the same odd level. The grouping of nearby levels with proper J-values led to recognition of the partially inverted term designated $e\,{}^6\mathrm{D}$. Both $e\,{}^6\mathrm{D}$ and $e\,{}^8\mathrm{D}$ have small intervals because their series limit is a ${}^7\mathrm{S}$ in Re II, and the available g-factors confirm the designations. The former interpretation [5] of level $5766_{3/2}$ was changed because the lower ${}^5\mathrm{D}$ in Re II was assigned [18] to $d^4\,s^2$ instead of d^6. In the course of this analysis of Re I we succeeded in supplementing this 3/2 level with 5/2, 7/2, and 9/2 to form the term designated as $f\,{}^6\mathrm{D}$, with only the 1/2 level still lacking. These interpretations are supported by the observed intensities of the transitions to the odd levels which are displayed in figure 3, where the observed intensity is roughly represented by the size of the black circle, and shaded circles indicate outstanding intensities. The most striking feature of figure 3 is that the levels of $d^5\,s({}^5\mathrm{D})s\,{}^6\mathrm{D}$ combine much more strongly with the higher odd ${}^6\mathrm{D}$ than with the lower one. The explanation is that the former transitions (to $d^5\,s({}^5\mathrm{P})p\,{}^6\mathrm{D}$) require only one electron jump (p to s), whereas the latter transitions (to $d^4\,s^2({}^5\mathrm{D})p\,{}^6\mathrm{D}$)

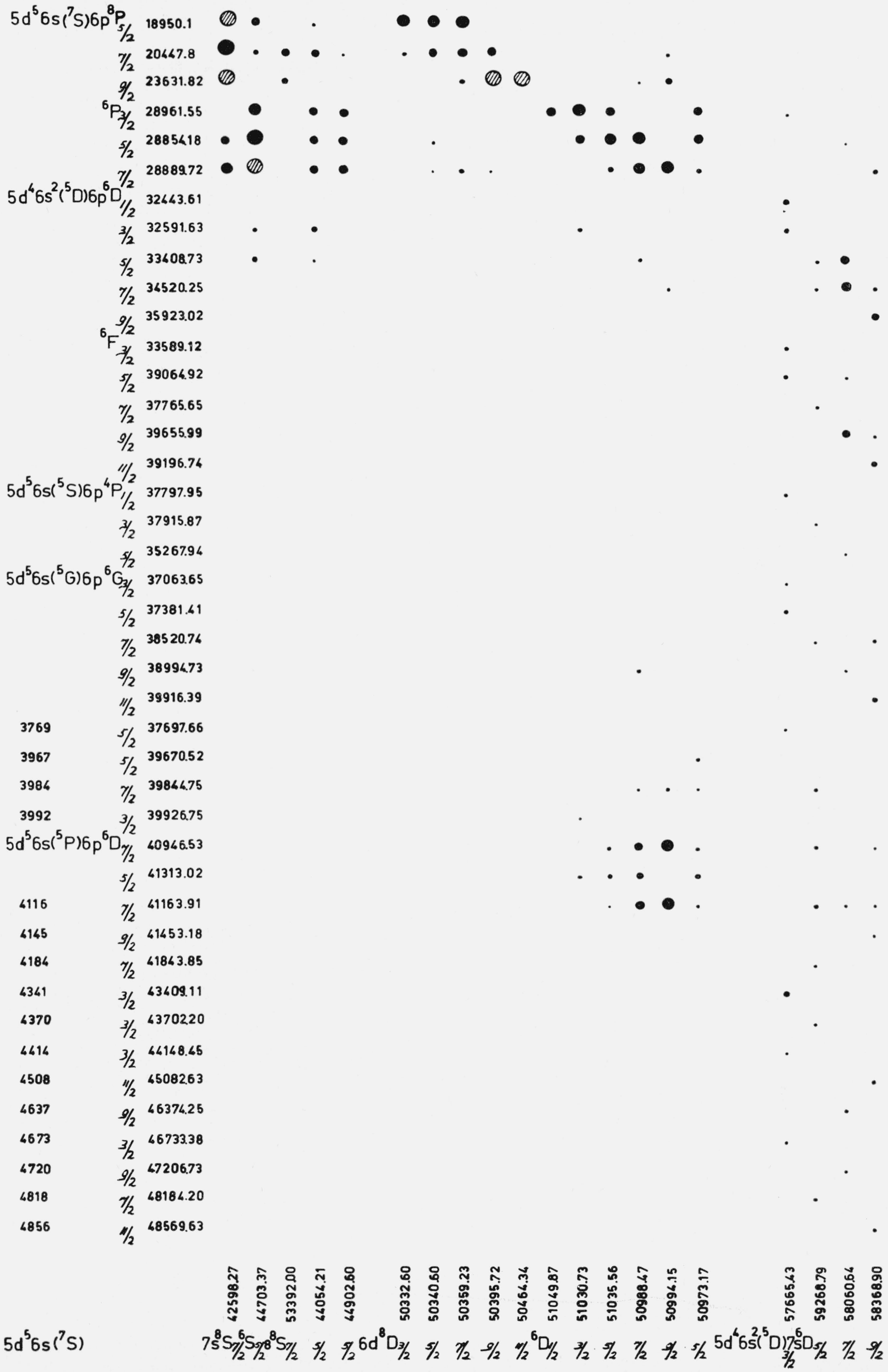

FIGURE 3. *Line intensities of transitions between* Re I *levels.*

involve a simultaneous jump of two electrons (p to s and s to d).

In the high even group of Re I there are two 5/2 levels the parent terms of which should be very low in Re II, but are still unknown. The Re I levels in question have values 44054.21 and 44902.60 K; they are well established (see fig. 3) but without g-factors. These levels suggest the existence of Re II levels between 0 and 13777 K, for which supposition there is no further evidence except that $d^6\ ^5D$ is still unknown. Another unidentified high even level in Re I is at 50973.17 K, but in this energy range there are more possibilities, and this lone level is left as an invitation to further analysis and interpretation.

In his first paper Meggers [1] derived from two ^8S terms in series a spectroscopic convergence limit of 63530 K for Re I. In his second paper Klinkenberg [5] derived from two ^6S terms a Rydberg-series limit of 65560 K, which he regarded as an upper limit because the proper correction is unknown. If the Rydberg denominator deviates only 0.04 from unity this limit would be reduced to 63000 K. Because there is at present no further information on spectral series in Re I the original limit is accepted, and the ionization potential remains near 7.87 electron volts.

The present description and interpretation of Re I has been a long and difficult task; it is still far from satisfactory or complete but may require additional experimental and theoretical study before it can be continued. This analysis has been pushed to its present state primarily so that table 4 could be reproduced in Volume III of Atomic Energy Levels [19], where detailed comparisons with other tables may give inspiration for further progress in the quantum interpretation of complex atomic spectra.

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TABLE 1. *Energy levels of the* Re *atom*

Designation	Value	J	g	Origin	Designation	Value	J	g	Origin
LOW EVEN GROUP									
0	0.00	5/2	1.950	M 31	266	26661.43	5/2	1.32	K 47
115	11583.96	5/2	1.278	M 31	270	27130.14	13/2	1.20_8	------
117	11754.52	9/2	1.545	M 31	271	27141.13	7/2	1.34	M 33
138	13826.12	3/2	1.485	M 31	272	27161.35	9/2	-----------	K 47
142	14216.86	7/2	1.567	M 31	273	27243.88	11/2	1.18	K 48
146	14621.46	5/2	1.151	M 31	273′	27384.40	1/2	2.396 (0.072)	------
150	15058.19	7/2	1.153	M 31	273″	27385.20	1/2	-----------	------
151	15165.89	1/2	2.368	K 47	275	27514.31	9/2	1.13	K 47
157	15770.42	5/2	1.309	M 31	278	27827.65	3/2	0.888	K 48
163	16307.15	11/2	1.242	M 31	280	28030.32	5/2	1.12	K 48
164	16327.51	3/2	1.706	M 31	285	28542.13	7/2	-----------	K 48
166	16619.28	9/2	1.175	M 31	288	28809.87	7/2	0.93 (1.44)	------
172	17238.30	1/2	2.521	M 31	298	29800.38	5/2	~1.17	K 48
173	17330.82	7/2	1.255	M 31	301	30131.57	1/2	-----------	K 48
194	19457.89	5/2	1.361	M 33	304	30526.60	3/2	-----------	------
197	19757.91	1/2	0.983	K 47	305	30559.91	11/2	1.07	------
204	20481.73	3/2	1.451	K 47	306	30645.33	9/2	-----------	K 48
217	21775.40	7/2	1.135	M 31	311	31186.08	5/2	1.17?	------
221	22160.04	9/2	1.198	K 47	313	31399.30	9/2	-----------	K 48
224	22422.83	3/2	0.781	K 47	314	31460.62	3/2	-----------	K 48
231	23154.81	5/2	1.189	M 33	319	31982.99	7/2	-----------	K 48
239	23956.00	11/2	0.995	K 47	324	32435.14	5/2	-----------	------
244	24425.40	5/2	1.067	K 47	332	33281.65	5/2	-----------	------
247	24724.22	7/2	1.03	M 33	333	33317.57	11/2	-----------	------
261	26131.57	3/2	0.650	M 33	338	33823.66	7/2	-----------	------
263	26348.96	13/2	1.100	K 48	341	34194.27	9/2	-----------	------

TABLE 1. *Energy levels of the* Re *atom*—Continued

Designation	Value	J	g	Origin	Designation	Value	J	g	Origin
				HIGH EVEN GROUP					
4259	42598. 27	7/2	1. 957	M 31	5098	50988. 47	7/2	1. 558	M 31
4405	44054. 21	5/2	-----------	M 31	5099	50994. 15	9/2	1. 548	M 31
4470	44703. 37	5/2	1. 866	M 31	5103	51030. 73	3/2	-----------	M 31
4491	44902. 60	5/2	-----------	M 31	5104	51035. 56	5/2	1. 546	M 31
5033	50332. 60	3/2	-----------	M 31	5105	51049. 87	1/2	-----------	C 53
5034	50340. 62	5/2	2. 027	M 31	5339	53392. 00	7/2	-----------	M 31
5035	50359. 23	7/2	1. 820	M 31	5766	57665. 43	3/2	-----------	K 48
5039	50395. 72	9/2	1. 690	M 31	5806	58060. 64	7/2	-----------	------
5047	50464. 34	11/2	1. 629	M 31	5836	58368. 90	9/2	-----------	------
5097	50973. 17	5/2	1. 489	M 31	5926	59268. 79	5/2	-----------	------
				ODD GROUP					
1895	18950. 1	5/2	2. 274	M 31	4394	43949. 98	5/2	1. 385	K 47
2044	20447. 8	7/2	1. 926	M 31	4399	43996. 30	11/2	1. 26	K 47
2363	23631. 82	9/2	1. 768	M 31	4414	44148. 45	3/2	1. 573	K 47
2885	28854. 18	5/2	1. 871	M 31	4422	44224. 58	9/2	1. 244	M 31
2888	28889. 72	7/2	1. 709	M 31	4430	44308. 73	5/2	1. 223	M 31
2896	28961. 55	3/2	2. 333	M 31	4441	44416. 33	1/2	0. 15	K 47
3244	32443. 61	1/2	-----------	M 31	4472	44720. 09	3/2	1. 330	K 47
3259	32591. 63	3/2	1. 762	M 31	4490	44901. 15	7/2	1. 253	M 31
3340	33408. 73	5/2	1. 500	M 31	4494	44946. 12	7/2	0. 905	K 47
3358	33589. 12	3/2	2. 335	M 31	4508	45082. 63	11/2	1. 40	M 31
3452	34520. 25	7/2	1. 454	M 31	4512	45121. 81	3/2	0. 674	K 47
3526	35267. 94	5/2	1. 385	M 31	4533	45332. 03	5/2	1. 088	K 48
3592	35923. 02	9/2	1. 440	M 31	4534	45343. 57	9/2	1. 131	M 31
3706	37063. 65	3/2	0. 626	M 31	4546	45462. 83	7/2	1. 300	M 31
3738	37381. 41	5/2	0. 990	M 31	4581	45817. 26	1/2	2. 197	
3769	37697. 66	5/2	1. 219	M 31	4587	45876. 34	3/2	1. 384	K 47
3776	37765. 65	7/2	1. 335	M 31	4590	45904. 25	11/2	1. 175	K 47
3779	37797. 95	1/2	2. 620	------	4593	45937. 18	7/2	1. 298	M 31
3791	37915. 87	3/2	1. 495	M 31	4611	46112. 24	5/2	1. 405	M 31
3852	38520. 74	7/2	1. 216	M 31	4614	46141. 11	1/2	0. 716	M 31
3899	38994. 73	9/2	1. 25	M 31	4635	46352. 99	7/2	1. 271	M 31
3906	39064. 92	5/2	1. 335	M 31	4637	46374. 25	9/2	1. 341	M 31
3919	39196. 74	11/2	1. 405	M 31	4650	46509. 40	5/2	1. 371	M 31
3965	39655. 99	9/2	1. 444	M 31	4664	46649. 42	5/2	1. 334	M 31
3967	39670. 52	5/2	1. 107	M 31	4673	46733. 38	3/2	1. 858	K 47
3984	39844. 75	7/2	1. 223	M 31	4700	47004. 34	3/2	1. 285	M 31
3991	39916. 39	11/2	1. 314	M 31	4710	47101. 61	5/2	0. 893	K 47
3992	39926. 75	3/2	0. 745	K 47	4717	47172. 1	3/2		
4049	40493. 34	13/2	1. 364	------	4718	47172. 9	1/2	2. 215	
					4720	47205. 73	9/2	1. 106	M 31
4080	40808. 85	3/2	1. 351	M 31	4735	47358. 36	7/2	1. 151	K 47
4081	40810. 17	1/2	-----------	M 31	4750	47506. 79	13/2	1. 26	K 48
4082	40821. 83	5/2	1. 126	M 31	4765	47664. 74	1/2	1. 50	
4094	40946. 53	7/2	1. 534	M 31	4766	47669. 01	7/2	1. 196	M 31
4116	41163. 91	7/2	1. 325	M 31	4770	47703. 78	3/2	1. 443	K 48
4131	41313. 02	5/2	1. 278	M 31	4777	47779. 91	3/2	1. 362	K 47
4145	41453. 18	9/2	1. 372	M 31	4785	47859. 93	11/2	1. 20	M 31
4155	41557. 08	3/2	1. 655	M 31	4789	47899. 22	5/2	1. 217	M 31
4184	41843. 85	7/2	1. 190	M 31	4793	47932. 55	7/2	1. 31	M 31
4199	41991. 56	1/2	0. 61	K 48	4797	47970. 82	5/2	1. 169	M 31
4214	42140. 06	9/2	1. 249	M 31	4818	48184. 20	7/2	1. 252	M 31
4225	42254. 19	3/2	1. 578	K 47	4856	48569. 63	11/2	1. 27	M 31
4304	43044. 02	5/2	1. 449	K 47	4878	48786. 35	7/2	1. 53	K 47
4334	43341. 85	3/2	0. 975	M 31	4885	48857. 60	7/2		K 47
4340	43407. 87	7/2	1. 368	M 31	4902	49022. 77	5/2	1. 495	M 31
4341	43409. 11	3/2	-----------	M 31	4903	49027. 85	7/2	1. 499	M 31
4345	43453. 30	9/2	1. 336	M 31	4917	49170. 76	9/2	1. 135	K 47
4356	43569. 36	5/2	1. 504	M 31	4925	49250. 02	3/2	1. 263	K 47
4370	43702. 20	3/2	1. 962	M 31	4928	49286. 07	11/2	1. 075	
4381	43815. 01	7/2	1. 348	K 47	4954	49540. 96	5/2		K 48

TABLE 1. *Energy levels of the* Re *atom*—Continued

Designation	Value	J	g	Origin	Designation	Value	J	g	Origin
ODD GROUP—continued									
4957	*49573. 11*	5/2	1. 344	K 47	*5401*	*54018. 19*	7/2	0. 723 (1. 895)	K 48
4958	*49582. 61*	9/2	1. 058	K 47	*5408*	*54086. 67*	7/2	1. 22	K 48
4966	*49667. 25*	3/2	1. 272	K 47	*5417*	*54177. 25*	7/2	1. 273	K 47
4985	*49859. 53*	1/2	0. 410		*5426*	*54268. 18*	5/2	1. 290	
4986	*49863. 22*	7/2	1. 175	K 47	*5440*	*54409. 61*	5/2	1. 069	K 48
4989	*49895. 57*	3/2	1. 989	K 47	*5446*	*54467. 40*	3/2	1. 361	
5011	*50110. 28*	5/2	1. 765	M 31	*5451*	*54513. 84*	7/2		K 47
5015	*50158. 87*	5/2	1. 422	K 47	*5455*	*54554. 61*	11/2		K 48
5019	*50196. 94*	9/2	1. 345	K 48	*5472*	*54729. 52*	13/2		
5026	*50263. 22*	3/2	1. 234		*5481*	*54813. 12*	9/2	1. 185 (1. 949)	K 47
5031	*50310. 70*	7/2	1. 170		*5482*	*54823. 02*	5/2	1. 183	K 48
5040	*50401. 01*	9/2	1. 055	K 47	*5496*	*54968. 85*	1/2	1. 314	
5046	*50463. 80*	5/2	1. 144	K 47	*5522*	*55223. 85*	11/2	1. 149	
5057	*50571. 02*	3/2	0. 935	K 48	*5545*	*55454. 48*	7/2	1. 17	
5066	*50663. 51*	11/2	1. 220	K 48	*5577*	*55776. 51*	13/2	1. 056	
5086	*50869. 00*	7/2	1. 240	K 48	*5589*	*55901. 20*	7/2	1. 22	
5093	*50934. 18*	5/2	1. 385	M 31	*5590*	*55902. 01*	3/2	0. 447 (1. 115)	
5102	*51027. 96*	9/2		K 47	*5591*	*55912. 42*	9/2	1. 06	K 48
5118	*51183. 00*	3/2	1. 456	V 52	*5630*	*56307. 97*	9/2		
5119	*51193. 49*	9/2		K 48	*5641*	*56411. 22*	9/2		
5122	*51229. 64*	7/2	1. 231	K 47	*5645*	*56451. 87*	1/2	1. 287	
5147	*51477. 15*	5/2	0. 97	K 47	*5652*	*56523. 41*	13/2		
5148	*51486. 29*	9/2	1. 20	K 48	*5669*	*56699. 41*	7/2	1. 25	V 52
5157	*51578. 05*	3/2		K 48	*5682*	*56822. 75*	5/2		V 52
5159	*51590. 08*	5/2	1. 02	K 48	*5686*	*56866. 06*	3/2	1. 099	
5164	*51647. 82*	7/2	1. 139	K 47	*5707*	*57073. 31*	1/2	0. 94	
5187	*51874. 43*	3/2	1. 29	V 52	*5709*	*57090. 29*	7/2		
5194	*51945. 94*	11/2		K 48	*5717*	*57172. 70*	7/2	1. 19	
5195	*51955. 02*	7/2	1. 200	K 47	*5728*	*57280. 86*	9/2	1. 19	K 48
5200	*52001. 37*	9/2	1. 357	K 47	*5737*	*57371. 75*	7/2		K 47
5212	*52122. 35*	13/2	1. 17	K 48	*5739*	*57391. 44*	11/2	1. 30	K 48
5221	*52218. 11*	5/2	1. 208	K 47	*5745*	*57452. 83*	13/2		K 48
5222	*52227. 20*	13/2		K 48	*5752*	*57524. 31*	5/2	~1. 40	
5227	*52278. 28*	3/2	1. 422	K 47	*5765*	*57656. 85*	9/2	1. 19	K 47
5237	*52373. 12*	7/2		K 47	*5805*	*58050. 58*	3/2	1. 111	
5246	*52469. 45*	1/2	1. 315		*5826*	*58260. 03*	7/2	1. 43	V 52
5247	*52472. 31*	5/2		V 52	*5827*	*58279. 31*	9/2		K 48
5261	*52610. 01*	7/2		V 52	*5833*	*58332. 42*	5/2		K 48
5274	*52741. 30*	9/2		K 47	*5844*	*58442. 51*	3/2	1. 32	K 48
5285	*52857. 44*	7/2	1. 30	K 47	*5854*	*58541. 88*	1/2		
5288	*52881. 34*	5/2	1. 05	K 47	*5861*	*58619. 32*	11/2	1. 165	K 48
5295	*52951. 59*	3/2	1. 14	K 48	*5912*	*59127. 30*	3/2	1. 20	V 52
5296	*52954. 46*	3/2		V 52	*5917*	*59171. 73*	5/2		V 52
5305	*53058. 74*	5/2	1. 184	K 47	*5929*	*59293. 45*	3/2		
5312	*53125. 19*	3/2	1. 145	K 47	*5939*	*59394. 29*	9/2		K 47
5328	*53288. 28*	1/2	1. 372		*5941*	*59412. 46*	11/2	1. 15	K 47
5329	*53293. 72*	3/2	1. 323	K 47	*5978*	*59784. 67*	7/2		
5332	*53320. 95*	9/2	1. 38	K 47	*5992*	*59926. 91*	7/2	1. 100 (1. 170)	
5333	*53335. 94*	7/2	1. 290	V 52	*6073*	*60737. 28*	5/2		K 48
5337	*53379. 35*	9/2	1. 09	K 47	*6083*	*60837. 10*	5/2	1. 22	
5338	*53389. 73*	5/2	1. 19	K 48	*6214*	*62142. 97*	11/2		
5346	*53467. 57*	11/2	1. 20	K 48	*6235*	*62350. 13*	7/2		
5373	*53738. 46*	7/2	1. 203	K 47	*6249*	*62493. 51*	7/2	~1. 17	
5384	*53842. 53*	3/2	1. 169	K 47	*6326*	*63267. 63*	11/2	1. 135	
5392	*53928. 90*	1/2	1. 113		*6377*	*63772. 40*	13/2		
5394	*53948. 73*	11/2	1. 13		*6393*	*63934. 76*	13/2	1. 07	

When no symbol is inserted in the column headed "origin" the corresponding level is a new one. The symbols ave the following meaning:
M 31, W. F. Meggers, BS J. Research **6,** 1027 (1931) RP322.
M 33, W. F. Meggers, BS J. Research **10,** 757 (1933) RP564.
K 47, P. F. A. Klinkenberg, Physica **13,** 581 (1947).
K 48, P. F. A. Klinkenberg, Physica **14,** 269 (1948).
V 52, R. Velasco, Anales real soc. espan. fis. y quim. **48,** 55 (1952).
C 53, M. A. Catalan, communicated in letter from Velasco to Klinkenberg, dated July 22, 1953.

TABLE 2. *Classified lines of* Re I

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
(12)	1716.45	58259.8		$0_{5/2}-5826_{7/2}$	−0.2	1
0	1758.55	56865.0		$0_{5/2}-5686_{3/2}$	−1.1	--
3	1759.83	56823.7		$0_{5/2}-5682_{5/2}$	+0.9	--
0	1763.70	56699.0		$0_{5/2}-5669_{7/2}$	−.4	--
1w	1788.96	55898.4		$0_{5/2}-5589_{7/2}$	−2.8	--
1	1845.77	54177.9		$0_{5/2}-5417_{7/2}$	+0.6	--
(12)	1848.88	54086.8		$0_{5/2}-5408_{7/2}$	+.1	1
0h	1851.23	54018.1		$0_{5/2}-5401_{7/2}$	−.1	--
(3)	1857.34	53840.4		$0_{5/2}-5384_{3/2}$	−2.1	1
(5)	1873.03	53389.4		$0_{5/2}-5338_{5/2}$	−0.3	1
(15r)	1874.93	53335.3		$0_{5/2}-5333_{7/2}$	−.6	1
4	1876.36	53294.7		$0_{5/2}-5329_{3/2}$	+1.0	--
(3)	1884.70	53058.8		$0_{5/2}-5305_{5/2}$	+0.1	1
(10)	1888.43	52954.0		$0_{5/2}-5296_{3/2}$	−.5	1
(10)	1891.04	52881.0		$0_{5/2}-5288_{5/2}$	−.3	1
(50R)	1900.83	52608.6		$0_{5/2}-5261_{7/2}$	−1.4	1
(50R)	1905.74	52473.1		$0_{5/2}-5247_{5/2}$	+0.8	1
(50R)	1909.36	52373.6		$0_{5/2}-5237_{7/2}$	+.5	1
2h	1912.81	52279.1		$0_{5/2}-5227_{3/2}$	+.8	--
3	1915.01	52219.0		$0_{5/2}-5221_{5/2}$	+.9	--
(15)	1924.74	51955.1		$0_{5/2}-5195_{7/2}$	+.1	1
(15r)	1927.72	51874.8		$0_{5/2}-5187_{3/2}$	+.4	1
8	1941.33	51511.1		$117_{9/2}-6326_{11/2}$	−2.0	--
(5)	1942.61	51477.1		$0_{5/2}-5147_{5/2}$	−0.1	1
12	1952.00	51229.5		$0_{5/2}-5122_{7/2}$	−.1	--
(5R)	1953.77	51185.1		$0_{5/2}-5118_{3/2}$	+2.1	1
(15R)	1963.38	50932.4		$0_{5/2}-5093_{5/2}$	−1.8	1
(5)	1965.83	50869.1		$0_{5/2}-5086_{7/2}$	+0.1	1
0	1969.87	50764.8		$115_{5/2}-6235_{7/2}$	−1.4	--
2s	1970.80	50740.8		$117_{9/2}-6249_{7/2}$	+1.2	--
2	1977.48	50569.4		$0_{5/2}-5057_{3/2}$	−1.6	--
(5)	1981.62	50463.8		$0_{5/2}-5046_{5/2}$	0.0	1
(20R)	1995.61	50110.0		$0_{5/2}-5011_{5/2}$	−.3	1
	λ_{air}					
50R	2003.532	49895.70		$0_{5/2}-4989_{3/2}$	+.13	2
(10)	2004.84	49863.2		$0_{5/2}-4986_{7/2}$	.0	3
(2)	2012.74	49667.5		$0_{5/2}-4966_{3/2}$	+.3	4
20r	2016.56	49573.4		$0_{5/2}-4957_{5/2}$	+.3	--
200R	2017.866	49541.32		$0_{5/2}-4954_{5/2}$	+.36	--
5	2029.70	49252.6		$115_{5/2}-6083_{5/2}$	−.5	--
20r	2033.78	49153.8		$115_{5/2}-6073_{5/2}$	+.5	--
30r	2038.99	49028.0		$0_{5/2}-4903_{7/2}$	+.1	--
50r	2039.204	49022.99		$0_{5/2}-4902_{5/2}$	+.22	--
(7)	2046.09	48848.0		$0_{5/2}-4885_{7/2}$	+.4	5
400R	2049.079	48786.77		$0_{5/2}-4878_{7/2}$	+.42	--
20r	2067.89	48343.0		$115_{5/2}-5992_{7/2}$	.0	--
20r	2074.70	48184.4		$0_{5/2}-4818_{7/2}$	+.2	--
5	2075.20	48172.8		$117_{9/2}-5992_{7/2}$	+.4	--
7	2081.35	48030.5		$117_{9/2}-5978_{7/2}$	+.3	--
40r	2083.925	47971.11		$0_{5/2}-4797_{5/2}$	+.29	--
200R	2085.594	47932.71		$0_{5/2}-4793_{7/2}$	+.16	--
3h	2088.23	47872.3		$146_{5/2}-6249_{7/2}$	+.2	--
50r	2092.24	47780.4		$0_{5/2}-4777_{3/2}$	+.5	--
5	2094.50	47728.8		$146_{5/2}-6235_{7/2}$	+.1	--
2	2095.33	47709.9		$115_{5/2}-5929_{3/2}$	+.4	--
100R	2097.122	47669.26		$0_{5/2}-4766_{7/2}$	+.25	--
4	2097.603	47658.33		$117_{9/2}-5941_{11/2}$	+.39	5
4	2098.41	47639.9		$117_{9/2}-5939_{9/2}$	+.1	--
3	2102.67	47543.4		$115_{5/2}-5912_{3/2}$	+.1	--
4	2106.13	47465.4		$163_{11/2}-6377_{13/2}$	+.1	--
60r	2107.452	47435.63		$150_{7/2}-6249_{7/2}$	+.31	--
30r	2113.87	47291.6		$150_{7/2}-6235_{7/2}$	−.3	--
4	2128.773	46960.59		$163_{11/2}-6326_{11/2}$	+.11	--
2	2131.01	46911.4		$138_{3/2}-6073_{5/2}$	+.2	--
2	2133.122	46864.86		$117_{9/2}-5861_{11/2}$	+.06	5
5	2133.41	46858.6		$115_{5/2}-5844_{3/2}$	.0	--
5h	2138.44	46748.4		$115_{5/2}-5833_{5/2}$	−.1	--
6	2141.745	46676.19		$115_{5/2}-5826_{7/2}$	+.12	--
20r	2142.97	46649.4		$0_{5/2}-4664_{5/2}$	.0	--
3	2148.92	46520.3		$142_{7/2}-6073_{5/2}$	−.1	--
5	2149.43	46509.3		$0_{5/2}-4650_{5/2}$	−.1	--
1	2149.59	46505.8		$117_{9/2}-5826_{7/2}$	+.3	5
4	2151.40	46466.7		$115_{5/2}-5805_{3/2}$	+.1	--
100R	2156.673	46353.14		$0_{5/2}-4635_{7/2}$	+.15	--
10	2163.10	46215.4		$146_{5/2}-6083_{5/2}$	−.2	--
200R	2167.938	46112.32		$0_{5/2}-4611_{5/2}$	+.08	--
200R	2176.206	45937.13		$0_{5/2}-4593_{7/2}$	−.05	--
2	2177.851	45902.45		$117_{9/2}-5765_{9/2}$	+.12	5
(5)	2179.09	45876.4		$0_{5/2}-4587_{3/2}$	+.1	4
8	2179.18	45874.5		$166_{9/2}-6249_{7/2}$	+.3	--
20	2181.02	45835.8		$163_{11/2}-6214_{11/2}$	.0	--
100R	2183.72	45779.2		$150_{7/2}-6083_{5/2}$	+.3	--
3	2187.02	45710.1		$142_{7/2}-5992_{7/2}$	.0	--
6	2188.50	45679.2		$150_{7/2}-6073_{5/2}$	+.1	--
10	2190.518	45637.03		$117_{9/2}-5739_{11/2}$	+.11	--
40	2191.471	45617.19		$117_{9/2}-5737_{7/2}$	−.04	--
3	2192.84	45588.6		$115_{5/2}-5717_{7/2}$	−.1	--
5	2193.85	45567.6		$142_{7/2}-5978_{7/2}$	−.2	--
8	2195.84	45526.4		$117_{9/2}-5728_{9/2}$	+.1	--
10	2195.97	45523.7		$166_{9/2}-6214_{11/2}$	.0	—
200R	2198.914	45462.79		$0_{5/2}-4546_{7/2}$	−.04	--
8	2201.075	45418.17		$117_{9/2}-5717_{7/2}$	−.01	--
4	2206.76	45301.1		$138_{3/2}-5912_{3/2}$	−.01	--
20	2207.680	45282.31		$115_{5/2}-5686_{3/2}$	+.21	--
30	2209.800	45238.86		$115_{5/2}-5682_{5/2}$	+.07	--
10	2212.809	45177.36		$142_{7/2}-5939_{9/2}$	−.07	--
2	2213.50	45163.2		$146_{5/2}-5978_{7/2}$	.0	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
2	2215.535	45121.77		$0_{5/2}-4512_{3/2}$	−.04	--
10	2220.577	45019.33		$173_{7/2}-6235_{7/2}$	+.02	--
5	2223.16	44967.1		$157_{5/2}-6073_{5/2}$	+.3	--
3	2223.77	44954.7		$142_{7/2}-5917_{5/2}$	−.2	--
(10)	2224.21	44945.8		$0_{5/2}-4494_{7/2}$	−.3	3
300R	2226.418	44901.24	(**.342**, 1.015. . .)	$0_{5/2}-4490_{7/2}$	+.09	--
30	2228.05	44868.4		$150_{7/2}-5992_{7/2}$	−.3	--
7	2235.110	44726.64		$150_{7/2}-5978_{7/2}$	+.16	--
50r	2235.440	44720.04		$0_{5/2}-4472_{3/2}$	−.05	--
2	2237.85	44672.0		$146_{5/2}-5929_{3/2}$	.0	--
40r	2238.603	44656.85		$117_{9/2}-5641_{9/2}$	+.15	--
30	2240.63	44616.4		$138_{3/2}-5844_{3/2}$	.0	--
8	2243.79	44553.6		$117_{9/2}-5630_{9/2}$	+.1	--
2	2246.18	44506.2		$138_{3/2}-5833_{5/2}$	−.1	--
30	2254.790	44336.30		$150_{7/2}-5939_{9/2}$	+.20	--
100r	2255.729	44317.83		$115_{5/2}-5590_{3/2}$ $115_{5/2}-5589_{7/2}$	−.21 +.59	6
150R	2256.193	44308.72		$0_{5/2}-4430_{5/2}$	−.01	--
5	2260.50	44224.31		$138_{3/2}-5805_{3/2}$	−.15	5
10	2263.96	44156.7		$157_{5/2}-5992_{7/2}$	+.2	--
200R	2264.393	44148.28	(**.186**, .547) 1.789, 2.150, **2.512**	$0_{5/2}-4414_{3/2}$	−.17	--
30	2266.072	44115.58		$142_{7/2}-5833_{5/2}$	+.02	--
2	2266.18	44113.5		$150_{7/2}-5917_{5/2}$	.0	5
10	2268.803	44062.49		$142_{7/2}-5827_{9/2}$	+.04	--
2	2269.793	44043.26		$142_{7/2}-5826_{7/2}$	+.09	5
40r	2271.300	44014.05		$157_{5/2}-5978_{7/2}$	−.20	--
4	2274.016	43961.47		$151_{1/2}-5912_{3/2}$	+.06	--
300R	2274.618	43949.84	(2.259, 2.804, **3.352**) .530, 1.100, **1.671**, 2.242, 2.812	$0_{5/2}-4394_{5/2}$	−.14	--
10	2278.73	43870.6		$115_{5/2}-5545_{7/2}$	+.1	--
10	2281.29	43821.4		$146_{5/2}-5844_{3/2}$	+.3	--
200R	2281.620	43814.99	(**.297**, .898, 1.500)	$0_{5/2}-4381_{7/2}$	−.02	--
400R	2287.506	43702.24	(.000) 1.940	$0_{5/2}-4370_{3/2}$	+.04	--
400R	2294.486	43569.32	(.206, .664, **1.121**) .832, 1.275, **1.717**, 2.160, 2.600	$0_{5/2}-4356_{5/2}$	−.04	--
40r	2296.926	43523.03		$157_{5/2}-5929_{3/2}$	.00	--
7	2297.81	43506.3		$173_{7/2}-6083_{5/2}$	.0	--
20	2299.769	43469.25		$117_{9/2}-5522_{11/2}$	−.08	--
8	2301.318	43439.98		$142_{7/2}-5765_{9/2}$	−.01	--
4	2301.884	43429.30		$146_{5/2}-5805_{3/2}$	+.18	--
150R	2302.992	43408.41		$0_{5/2}-4341_{5/2}$ $0_{5/2}-4340_{7/2}$	−.70 +.54	6
3	2303.370	43401.29		$157_{5/2}-5917_{5/2}$	−.02	--
10	2304.714	43375.99		$151_{1/2}-5854_{1/2}$	.00	--
10	2305.726	43356.96		$157_{5/2}-5912_{3/2}$	+.08	--
60r	2306.540	43341.64	(**.495, 1.456**) . . . , 2.615, **3.568**.	$0_{5/2}-4334_{3/2}$	−.21	
20	2308.354	43307.59		$166_{9/2}-5992_{7/2}$ $142_{7/2}-5752_{5/2}$	−.04 +.14	-- --
3	2310.00	43276.7		$151_{1/2}-5844_{3/2}$	+.1	--
10	2310.134	43274.21		$150_{7/2}-5833_{5/2}$	−.02	--
8	2311.576	43247.23		$138_{3/2}-5707_{1/2}$	+.04	--
7	2312.011	43239.09		$115_{5/2}-5482_{5/2}$	+.03	--
10r	2312.971	43221.15		$150_{7/2}-5827_{9/2}$	+.03	--
30r	2315.956	43165.44		$166_{9/2}-5978_{7/2}$	+.05	--
30	2316.523	43154.88		$142_{7/2}-5737_{7/2}$	−.01	--
30r	2319.19	43105.3		$163_{11/2}-5941_{11/2}$	.0	--
50r	2320.162	43087.20		$163_{11/2}-5939_{9/2}$	+.06	--
10	2321.41	43064.1		$142_{7/2}-5728_{9/2}$	+.1	--
10	2321.70	43058.7		$117_{9/2}-5481_{9/2}$	+.1	--
50R	2322.490	43044.02	(.255, .764 **1.273**) .687, 1.194, **1.703**, 2.210, 2.714.	$0_{5/2}-4304_{5/2}$	.00	--
4	2322.700	43040.13		$138_{3/2}-5686_{3/2}$	+.19	--
10	2322.945	43035.59		$194_{5/2}-6249_{7/2}$	−.03	--
20	2325.045	42996.72		$138_{3/2}-5682_{5/2}$	+.09	--
30r	2328.664	42929.90	(.000) 1.216	$115_{5/2}-5451_{7/2}$	+.03	--
4	2330.706	42892.30		$194_{5/2}-6235_{7/2}$	+.06	--
20	2331.135	42884.41		$172_{1/2}-5805_{3/2}$	−.28	--
(3)	2331.19	42883.3		$115_{5/2}-5446_{3/2}$	−.1	4
20	2331.73	42873.4		$142_{7/2}-5709_{7/2}$	.0	--
20	2333.32	42844.2		$164_{3/2}-5917_{5/2}$	.0	--
20r	2334.33	42825.6	(.547) 1.016h	$115_{5/2}-5440_{5/2}$	−.1	--
20r	2335.730	42800.05		$117_{9/2}-5455_{11/2}$	−.04	--
20r	2336.10	42793.2		$166_{9/2}-5941_{11/2}$	.0	--
10	2337.092	42775.09		$166_{9/2}-5939_{9/2}$	+.08	--
40R	2337.953	42759.35	(**.148**,. 417)	$117_{9/2}-5451_{7/2}$	+.03	--
20	2338.451	42750.24		$146_{5/2}-5737_{7/2}$	−.05	--
2	2342.06	42684.3		$115_{5/2}-5426_{5/2}$	+.1	--
30	2342.731	42672.15		$157_{5/2}-5844_{3/2}$	+.06	--
20r	2345.282	42625.75		$138_{3/2}-5645_{1/2}$	.00	--
4h	2346.37	42606.0		$142_{7/2}-5682_{5/2}$	+.1	--
6	2346.774	42598.64		$150_{7/2}-5765_{9/2}$	−.02	--
10	2347.064	42593.37	(.000) 1.261	$115_{5/2}-5417_{7/2}$	+.08	--
8	2348.792	42562.05		$157_{5/2}-5833_{5/2}$	+.05	--
30r	2349.391	42551.20	(.000) 1.271	$146_{5/2}-5717_{7/2}$	−.04	--
100R	2352.069	42502.75	(0w) 1.110h D	$115_{5/2}-5408_{7/2}$	+.04	--
5	2353.18	42482.7		$142_{7/2}-5669_{7/2}$	+.1	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30r	2353.95	42468.8		$146_{5/2}-5709_{7/2}$	.0	--
30r	2354.08	42466.5		$150_{7/2}-5752_{5/2}$	+.4	--
15	2354.773	42453.96		$173_{7/2}-5978_{7/2}$	+.11	--
10	2355.868	42434.21		$115_{5/2}-5401_{7/2}$	−.02	--
30r	2356.496	42422.91		$117_{9/2}-5417_{7/2}$	+.18	--
20	2362.64	42312.6		$163_{11/2}-5861_{11/2}$	+.4	--
3	2364.44	42280.4		$157_{5/2}-5805_{3/2}$	+.2	--
20r	2365.666	42258.47		$115_{5/2}-5384_{3/2}$	−.10	--
150R	2365.90	42254.4	(**.184**, .556) . . . 1.747, 2.121, **2.496**.	$0_{5/2}-4225_{3/2}$	+.2	--
50r	2367.683	42222.49	(.000) 1.171	$150_{7/2}-5728_{9/2}$	−.18	--
4	2368.12	42214.8		$164_{3/2}-5854_{1/2}$	+.3	--
15	2368.88	42201.2		$146_{5/2}-5682_{5/2}$	−.1	--
50r	2369.27	42194.3	(**.167**, .500, .832) **.163**, .493, .823	$142_{7/2}-5641_{9/2}$	−.1	19
				$117_{9/2}-5394_{11/2}$	+.1	
30r	2371.560	42154.53	(0w) 1.000B	$115_{5/2}-5373_{7/2}$	+.03	--
15	2373.747	42114.62		$150_{7/2}-5717_{7/2}$	+.11	--
100r	2375.073	42091.12		$142_{7/2}-5630_{9/2}$	+.01	--
15r	2375.815	42077.97	(0w) 1.412hD	$146_{5/2}-5669_{7/2}$	+.02	--
10	2375.93	42075.9		$138_{3/2}-5590_{3/2}$	.0	--
10	2376.629	42063.57		$173_{7/2}-5939_{9/2}$	+.10	--
10	2377.104	42055.15		$172_{1/2}-5929_{3/2}$	.00	--
3	2378.40	42032.2		$150_{7/2}-5709_{7/2}$	+.1	--
5	2379.950	42004.87		$164_{3/2}-5833_{5/2}$	−.04	--
20	2380.225	42000.02	(.000) 1.124	$166_{9/2}-5861_{11/2}$	−.02	--
40	2381.136	41983.96	(**.159**, .488, .817)	$117_{9/2}-5373_{7/2}$	+.02	--
6	2381.81	41972.0		$163_{11/2}-5827_{9/2}$	−.2	--
15	2385.48	41907.5		$151_{1/2}-5707_{1/2}$	+.1	--
10	2386.536	41888.95		$172_{1/2}-5912_{3/2}$	−.05	--
20r	2389.110	41843.84	(**.376**, 1.118)	$0_{5/2}-4184_{7/2}$	+.01	--
5	2389.270	41841.03		$173_{7/2}-5917_{5/2}$	+.08	--
30r	2391.278	41805.89		$115_{5/2}-5338_{5/2}$	+.12	--
50r	2393.645	41764.56		$150_{7/2}-5682_{5/2}$	.00	--
4	2394.252	41753.98		$157_{5/2}-5752_{5/2}$	+.09	--
30r	2394.37	41751.9	(.000) 1.311	$115_{5/2}-5333_{7/2}$	−.1	--
7	2396.03	41723.0		$164_{3/2}-5805_{3/2}$	−.1	--
(10)	2396.60	41713.1		$117_{9/2}-5346_{11/2}$	.0	7
40r	2396.791	41709.74	(.000) 1.245	$115_{5/2}-5329_{3/2}$	−.02	--
50	2397.31	41700.7	(.626) .465	$151_{1/2}-5686_{3/2}$	+.5	8
4	2397.605	41695.59		$142_{7/2}-5591_{9/2}$	+.03	--
10	2398.25	41684.4		$142_{7/2}-5589_{7/2}$	+.1	--
6	2399.648	41660.10		$166_{9/2}-5827_{9/2}$	+.07	--
20	2400.72	41641.5		$150_{7/2}-5669_{7/2}$	+.3	--
30	2401.680	41624.85	(.705, 1.178, 1.650, **2.125**), .388, .847, **1.306**, 1.765.	$117_{9/2}-5337_{9/2}$	+.02	--
10	2403.036	41601.36		$157_{5/2}-5737_{7/2}$	+.03	5
300R	2405.056	41566.42	(.730) 1.547wA	$117_{9/2}-5332_{9/2}$	−.01	--
200r	2405.602	41556.99	(**.152**, .444) 1.789, 2.086, **2.386**.	$0_{5/2}-4155_{3/2}$	−.09	--
30r	2410.37	41474.8	(.210) 1.235h	$115_{5/2}-5305_{5/2}$	.0	--
30r	2414.587	41402.36	(0w) .965hC	$157_{5/2}-5717_{7/2}$	+.08	--
4h	2415.93	41379.4		$194_{5/2}-6083_{5/2}$	+.2	--
10	2416.441	41370.60		$115_{5/2}-5296_{3/2}$	+.10	--
15	2417.661	41349.72	(0w) 1.438D	$163_{11/2}-5765_{9/2}$	+.02	--
60r	2419.404	41319.94		$157_{5/2}-5709_{7/2}$	+.07	--
100r	2419.807	41313.06	(.335, 1.004, **1.673**) .287, .956, **1.616**, 2.279, 2.948.	$0_{5/2}-4131_{5/2}$	+.04	--
5	2420.35	41303.7		$172_{1/2}-5854_{1/2}$	+.1	--
5	2420.72	41297.4		$115_{5/2}-5288_{5/2}$	.0	--
30	2421.38	41286.1		$151_{1/2}-5645_{1/2}$	+.1	--
40r	2421.730	41280.26	(0w) 1.198	$146_{5/2}-5590_{3/2}$	−.29	6
				$146_{5/2}-5589_{7/2}$	+.52	
2	2422.11	41273.7		$115_{5/2}-5285_{7/2}$	+.2	--
30	2423.50	41250.0		$150_{7/2}-5630_{9/2}$	+.2	--
10	2426.195	41204.28		$172_{1/2}-5844_{3/2}$	+.07	--
30	2426.635	41196.81	(000) .994	$164_{3/2}-5752_{5/2}$	+.01	11
300R	2428.576	41163.90	(**.319**, .972, 1.625) **.319**, .965, 1.611, 2.255.	$0_{5/2}-4116_{7/2}$	−.01	--
10	2429.648	41145.74		$163_{11/2}-5745_{13/2}$	+.06	--
80	2432.18	41102.9	(**.125**, .412, .696).	$117_{9/2}-5285_{7/2}$	.0	--
5	2432.617	41095.52		$157_{5/2}-5686_{3/2}$	−.08	--
20	2433.28	41084.3	(.172) 1.256h	$163_{11/2}-5739_{11/2}$	.0	--
10	2436.046	41037.67	(.000) 1.182	$166_{9/2}-5765_{9/2}$	+.10	--
(10)	2436.74	41026.0	(000) 1.095	$115_{5/2}-5261_{7/2}$	−.1	7
30	2438.462	40997.03	(.156, .467) **.715**, 1.026, 1.338.	$138_{3/2}-5482_{5/2}$	+.13	--
30	2439.06	40987.0		$117_{9/2}-5274_{9/2}$	+.2	--
3	2439.86	40973.5		$163_{11/2}-5728_{9/2}$	−.2	--
3	2441.35	40948.5		$173_{7/2}-5827_{9/2}$	.0	5
100R	2441.47	40946.5	(**.211**, .628, 1.046) **.490**, .906, 1.319, 1.730, 2.143, 2.556.	$0_{5/2}-4094_{7/2}$	.0	--
40r	2442.510	40929.09		$173_{7/2}-5826_{7/2}$	−.12	9
			(000) 1.129	$157_{5/2}-5669_{7/2}$	+.10	
70r	2444.943	40888.35	(.427, **.717**)	$115_{5/2}-5247_{5/2}$	.00	--
30	2446.978	40854.36		$150_{7/2}-5591_{9/2}$	+.13	--
5	2447.656	40843.04		$150_{7/2}-5589_{7/2}$	+.03	--
1	2448.26	40833.0		$146_{5/2}-5545_{7/2}$	.0	5
60r	2449.710	40808.79	(000) 2.850	$0_{5/2}-4080_{3/2}$	−.06	10, 26
30	2450.895	40789.07	(0w)?	$115_{5/2}-5237_{7/2}$	−.09	--
8	2451.910	40772.19		$166_{9/2}-5739_{11/2}$	+.03	--
10	2453.493	40745.87	(.387)	$164_{3/2}-5707_{1/2}$	+.07	--
3	2454.082	40736.10		$151_{1/2}-5590_{3/2}$	−.02	--
2	2458.577	40661.62		$166_{9/2}-5728_{9/2}$	+.04	--
4	2459.81	40641.3		$138_{3/2}-5446_{3/2}$	.0	--
20	2460.24	40634.2	(.160) 1.231h	$115_{5/2}-5221_{5/2}$	.0	--
200R	2461.196	40618.35	(0h) 1.503h D	$117_{9/2}-5237_{7/2}$	−.25	--
10	2462.539	40596.21	(**.194**, .574, .952).	$142_{7/2}-5481_{9/2}$	−.05	--
15	2463.307	40583.55	(**.213**, .628) **.445**, .860, 1.274.	$138_{3/2}-5440_{5/2}$	+.06	--
5	2463.84	40574.7		$217_{7/2}-6235_{7/2}$	.0	--
30	2465.13	40553.5	(000) 1.111	$166_{9/2}-5717_{7/2}$	+.1	--
5	2466.042	40538.54		$164_{3/2}-5686_{3/2}$	−.01	--
4	2470.164	40470.90		$166_{9/2}-5709_{7/2}$	−.20	--
3	2470.275	40469.08		$194_{5/2}-5992_{7/2}$	+.06	--
2	2471.93	40441.9		$138_{3/2}-5426_{5/2}$	−.2	--
15	2474.725	40396.32	(000) 1.154	$150_{7/2}-5545_{7/2}$	+.03	--
5	2476.275	40371.04		$115_{5/2}-5195_{7/2}$	−.02	--
2h	2478.58	40333.5		$221_{9/2}-6249_{7/2}$	.0	--
20	2479.02	40326.3		$194_{5/2}-5978_{7/2}$	−.5	--
				$173_{7/2}-5765_{9/2}$	+.3	--
20	2480.820	40297.08	(.471, .792, **1.114**).	$142_{7/2}-5451_{7/2}$	+.1	--
4	2481.226	40290.49		$115_{5/2}-5187_{3/2}$	+.02	--
5	2483.38	40255.5		$204_{3/2}-6073_{5/2}$	−.1	--
200R	2483.920	40246.79	(.875) 1.452A	$117_{9/2}-5200_{9/2}$	−.06	--
20	2485.805	40216.28		$163_{11/2}-5652_{13/2}$	+.02	--
30	2486.779	40200.53	(**.171**, .490, .809).	$117_{9/2}-5195_{7/2}$	+.03	--
5	2487.21	40193.6		$173_{7/2}-5752_{5/2}$	+.1	--
200R	2487.331	40191.60		$117_{9/2}-5194_{11/2}$	+.18	--
9	2491.07	40131.3		$157_{5/2}-5590_{3/2}$	−.3	--
				$157_{5/2}-5589_{7/2}$	+.5	--
2	2491.497	40124.40		$164_{3/2}-5645_{1/2}$	+.04	--
8	2492.751	40104.22		$163_{11/2}-5641_{9/2}$	+.15	--
3	2492.838	40102.82	(.192) 1.738	$138_{3/2}-5392_{1/2}$	+.04	--
3	2494.250	40080.12		$166_{9/2}-5669_{7/2}$	−.01	--
8	2495.263	40063.84		$115_{5/2}-5164_{7/2}$	−.02	--
30	2496.039	40051.39	(**.142**, .419, .697) .835†.	$142_{7/2}-5426_{5/2}$	+.07	11
10	2496.692	40040.92		$173_{7/2}-5737_{7/2}$	−.01	--
20	2498.215	40016.51	(.479) 1.010, 1.345, **1.678**†.	$138_{3/2}-5384_{3/2}$	+.10	--
20	2498.861	40006.17	(.394, **.661**) 1.386.	$115_{5/2}-5159_{5/2}$	+.05	12
1	2499.19	40001.0		$163_{11/2}-5630_{9/2}$	+.2	--
2	2499.608	39994.22		$115_{5/2}-5157_{3/2}$	+.13	--
10	2500.312	39982.95		$221_{9/2}-6214_{11/2}$	+.02	--
10	2500.568	39978.85	(0w) D	$239_{11/2}-6393_{13/2}$	+.09	--
50r	2501.721	39960.43	(.453, .759, **1.062**) .529, .819, 1.113, **1.417**, 1.707, 1.992.	$142_{7/2}-5417_{7/2}$	+.04	--
30	2505.945	39893.08	(.485, **.805**) 1.146.	$115_{5/2}-5147_{5/2}$	−.11	--
30	2507.403	39869.89	(.566, .907, **1.251**).	$142_{7/2}-5408_{7/2}$	+.08	12
200R	2508.991	39844.65	(.366, 1.094, **1.821**)/	$0_{5/2}-3984_{7/2}$	+.10	12
5	2509.562	39835.59		$194_{5/2}-5929_{3/2}$	+.03	--
(5)	2510.771	39816.41		$239_{11/2}-6377_{13/2}$	+.01	7
5	2511.616	39803.02		$151_{1/2}-5496_{1/2}$	+.06	--
2	2511.720	39801.37		$142_{7/2}-5401_{7/2}$	+.04	--
4	2512.317	39791.92		$166_{9/2}-5641_{9/2}$	−.02	--
15	2512.550	39788.23	(.210) 1.051A	$146_{5/2}-5440_{5/2}$	+.08	--
2h	2514.35	39759.7		$173_{7/2}-5709_{7/2}$	+.2	--
5	2514.651	39754.98		$150_{7/2}-5481_{9/2}$	+.05	--
150r	2516.120	39731.77	(.506, .857, 1.209, **1.558**) 000, .341, .682, 1.023, **1.368**, 1.708, 2.043, 2.384, 2.729.	$117_{9/2}-5148_{9/2}$	.0	--
5	2518.87	39688.4		$166_{9/2}-5630_{9/2}$	−.3	--
6	2519.139	39684.16		$157_{5/2}-5545_{7/2}$	+.10	--
50r	2520.009	39670.46	(.417, 1.266, **2.112**) −.146, .684, **1.526**, 2.369, 3.211.	$0_{5/2}-3967_{5/2}$	−.06	--
10	2521.50	39647.0		$146_{5/2}-5426_{5/2}$	+.3	--
5	2521.59	39645.6		$115_{5/2}-5122_{7/2}$	−.1	--
5	2522.719	39627.84		$172_{1/2}-5686_{3/2}$	+.08	--
5	2524.155	39605.30		$163_{11/2}-5591_{9/2}$	+.03	--
6	2524.546	39599.17		$115_{5/2}-5118_{3/2}$	+.13	--
10	2526.809	39563.70		$138_{3/2}-5338_{5/2}$	+.09	--
5	2527.311	39555.85		$146_{5/2}-5417_{7/2}$	+.06	--
(1)	2528.62	39535.4		$197_{1/2}-5929_{3/2}$	−.1	5
15	2529.50	39521.6		$142_{7/2}-5373_{7/2}$	.0	--
5	2531.404	39491.89		$173_{7/2}-5682_{5/2}$	−.04	--
5	2532.48	39475.1		$117_{9/2}-5122_{7/2}$	.0	--
5	2532.848	39469.38		$163_{11/2}-5577_{13/2}$	+.02	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
4	2532.963	39467.59		$138_{3/2}-\mathit{5329}_{3/2}$	−.01	--
4	2533.119	39465.16		$146_{5/2}-\mathit{5408}_{7/2}$	−.05	--
15r	2533.310	39462.19		$138_{3/2}-\mathit{5328}_{1/2}$	+.03	--
1	2533.74	39455.5		$150_{7/2}-\mathit{5451}_{7/2}$	−.2	--
30	2534.805	39438.91	(**260**, .775, 1.288)	$117_{9/2}-\mathit{5119}_{9/2}$	−.06	12
4	2537.517	39396.77		$146_{5/2}-\mathit{5401}_{7/2}$	+.04	--
20	2539.326	39368.69		$173_{7/2}-\mathit{5669}_{7/2}$	+.10	--
3	2540.45	39351.3		$150_{7/2}-\mathit{5440}_{5/2}$	−.1	--
40r	2540.513	39350.31	(.252) 1.342 A	$115_{5/2}-\mathit{5093}_{5/2}$	+.09	--
20h	2541.27	39338.6		$231_{5/2}-\mathit{6249}_{7/2}$	−.1	--
2	2543.022	39311.48		$239_{11/2}-\mathit{6326}_{11/2}$	−.15	--
10	2543.671	39301.45	(.495) .866	$151_{1/2}-\mathit{5446}_{3/2}$	−.06	5
8	2543.835	39298.92		$138_{3/2}-\mathit{5312}_{3/2}$	−.15	--
10	2544.215	39293.05	(.736) A	$166_{9/2}-\mathit{5591}_{9/2}$	−.09	--
100r	2544.739	39284.96	(0w) 1.169 D	$115_{5/2}-\mathit{5086}_{7/2}$	−.08	--
8	2544.952	39281.67	(0w) 1.047	$166_{9/2}-\mathit{5589}_{7/2}$	−.25	--
30r	2545.485	39273.45	(.993, 1.447, **1.898**).	$117_{9/2}-\mathit{5102}_{9/2}$	+.01	--
10	2548.136	39232.59	(**.151**, .457) **.762**, 1.068.	$138_{3/2}-\mathit{5305}_{5/2}$	−.03	--
20	2548.885	39221.06	(000) 1.143	$146_{5/2}-\mathit{5384}_{3/2}$	−.01	--
6	2549.372	39213.57		$172_{1/2}-\mathit{5645}_{1/2}$	.00	--
40r	2552.021	39172.87	(**.189**, .575, .961) 1.018, 1.396, 1.774, 2.152, **2.526**.	$142_{7/2}-\mathit{5338}_{5/2}$	.00	--
6	2554.929	39128.29		$138_{3/2}-\mathit{5296}_{3/2}$	−.05	--
2	2555.116	39125.42		$138_{3/2}-\mathit{5295}_{3/2}$	−.05	--
4	2555.531	39119.06		{ $142_{7/2}-\mathit{5333}_{7/2}$	−.02	--
				{ $150_{7/2}-\mathit{5417}_{7/2}$	.00	--
5	2555.666	39117.00		$146_{5/2}-\mathit{5373}_{7/2}$	.00	--
80R	2556.512	39104.06	(.101, .302, .502, **.803**) **.697**, .893, 1.090, 1.286, 1.483, 1.679.	$142_{7/2}-\mathit{5332}_{9/2}$	−.03	--
10	2558.062	39080.37		$173_{7/2}-\mathit{5641}_{9/2}$	−.03	--
20R	2559.076	39064.88	(.291, .916, **1.540**) .406, 1.031, **1.656**, 2.280, 2.903.	$0_{5/2}-\mathit{3906}_{5/2}$	−.04	--
6	2559.707	39055.25		$138_{3/2}-\mathit{5288}_{5/2}$	+.03	--
6	2559.882	39052.58		$157_{5/2}-\mathit{5482}_{5/2}$	−.02	--
8	2561.462	39028.50	(.159) 1.162A	$150_{7/2}-\mathit{5408}_{7/2}$	+.02	--
50R	2564.186	38987.03	(**.167**, .505) .781, 1.113, 1.446, **1.778**.	$115_{5/2}-\mathit{5057}_{3/2}$	−.03	--
10	2564.347	38984.59		$194_{5/2}-\mathit{5844}_{3/2}$	−.03	--
6	2565.839	38961.92		$217_{7/2}-\mathit{6073}_{5/2}$	+.04	--
3	2565.967	38959.98		$150_{7/2}-\mathit{5401}_{7/2}$	−.02	--
2	2568.817	38916.75		$163_{11/2}-\mathit{5522}_{11/2}$	+.05	--
4	2569.327	38909.03		$117_{9/2}-\mathit{5066}_{11/2}$	+.04	--
10	2571.255	38879.87	(.332) A	$115_{5/2}-\mathit{5046}_{5/2}$	+.03	--
1	2571.605	38874.58		$194_{5/2}-\mathit{5833}_{5/2}$	+.05	--
20	2573.760	38842.02	(**.192**, **.570**, .947) .633, 1.012, 1.389, 1.767, 2.144, **2.521**.	$142_{7/2}-\mathit{5305}_{5/2}$	+.14	--
6	2574.211	38835.22		$166_{9/2}-\mathit{5545}_{7/2}$	+.06	--
4	2576.408	38802.10		$194_{5/2}-\mathit{5826}_{7/2}$	−.04	--
6	2577.614	38783.95		$197_{1/2}-\mathit{5854}_{1/2}$	−.02	--
10	2579.005	38763.04	(.619) 1.732	$151_{1/2}-\mathit{5392}_{1/2}$	+.03	--
7	2580.311	38743.42		$157_{5/2}-\mathit{5451}_{7/2}$	.00	5
9hl	2581.438	38726.50		$115_{5/2}-\mathit{5031}_{7/2}$	−.24	--
2	2582.240	38714.47		$146_{5/2}-\mathit{5333}_{7/2}$	−.01	--
3	2583.406	38697.00		$157_{5/2}-\mathit{5446}_{3/2}$	+.02	--
4	2583.873	38690.01		$204_{3/2}-\mathit{5917}_{5/2}$	+.01	--
6	2584.523	38680.29		$150_{7/2}-\mathit{5373}_{7/2}$	+.02	--
10	2584.768	38676.62	(.594) .594, **1.304**†?.	$151_{1/2}-\mathit{5384}_{3/2}$	−.02	12
6	2585.061	38672.22		$146_{5/2}-\mathit{5329}_{3/2}$	−.04	--
8	2585.580	38664.46		$142_{7/2}-\mathit{5288}_{5/2}$	−.02	--
50R	2586.788	38646.41	(.704, 1.195, 1.686, **2.178**).	$117_{9/2}-\mathit{5040}_{9/2}$	−.08	--
7	2586.998	38643.28		$138_{3/2}-\mathit{5246}_{1/2}$	−.05	--
6	2589.594	38604.53	(000) 1.082	$166_{9/2}-\mathit{5522}_{11/2}$	−.04	--
6	2591.133	38581.61		$173_{7/2}-\mathit{5591}_{9/2}$	+.01	--
30r	2591.582	38574.93	(.373) A	$115_{5/2}-\mathit{5015}_{5/2}$	+.02	--
10	2591.889	38570.36		$173_{7/2}-\mathit{5589}_{7/2}$	−.02	--
10	2592.843	38556.17		$117_{9/2}-\mathit{5031}_{7/2}$	−.01	--
30R	2594.854	38526.29		$115_{5/2}-\mathit{5011}_{5/2}$	−.03	--
5	2594.982	38524.39		$142_{7/2}-\mathit{5274}_{9/2}$	−.05	--
60R	2595.234	38520.65		$0_{5/2}-\mathit{3852}_{7/2}$	−.09	--
10r	2596.780	38497.72	(000) 1.300	$157_{5/2}-\mathit{5426}_{5/2}$	−.04	--
50R	2599.856	38452.17	(000) 1.457	$138_{3/2}-\mathit{5227}_{3/2}$	+.01	--
5	2600.518	38442.39		$117_{9/2}-\mathit{5019}_{9/2}$	−.03	--
10	2600.866	38437.24	(0d?) 1.166	$146_{5/2}-\mathit{5305}_{5/2}$	−.04	--
15	2601.874	38422.36		$163_{11/2}-\mathit{5472}_{13/2}$	−.01	--
10	2602.926	38406.82	(0d?) 1.200	$157_{5/2}-\mathit{5417}_{7/2}$	−.01	--
10	2607.936	38333.04		$146_{5/2}-\mathit{5296}_{3/2}$	+.04	--
3	2608.043	38331.47		$150_{7/2}-\mathit{5338}_{5/2}$	−.07	--
3	2608.746	38321.15		$150_{7/2}-\mathit{5337}_{9/2}$	−.11	--
5	2609.085	38316.17		$157_{5/2}-\mathit{5408}_{7/2}$	−.08	--
5	2609.204	38314.42		$224_{3/2}-\mathit{6073}_{5/2}$	−.03	--
9	2609.404	38311.49		$115_{5/2}-\mathit{4989}_{3/2}$	−.12	--
4	2610.690	38292.60		$197_{1/2}-\mathit{5805}_{3/2}$	−.07	--
40R	2611.603	38279.22	(000) .910 C†	$115_{5/2}-\mathit{4986}_{7/2}$	−.04	--
5	2611.702	38277.77		$150_{7/2}-\mathit{5333}_{7/2}$	+.02	--
10	2612.730	38262.71		$150_{7/2}-\mathit{5332}_{9/2}$	−.05	--
5	2612.929	38259.80		$146_{5/2}-\mathit{5288}_{5/2}$	−.08	--
10	2613.235	38255.32		$142_{7/2}-\mathit{5247}_{5/2}$	−.13	--
15	2613.744	38247.87	(.293) A	$157_{5/2}-\mathit{5401}_{7/2}$	+.10	--
50R	2614.558	38235.96	(0w) 1.662 B	$146_{5/2}-\mathit{5285}_{7/2}$	−.02	--
10	2617.442	38193.84		$166_{9/2}-\mathit{5481}_{9/2}$	.00	--
40R	2620.026	38156.17	(.341) 1.485 A	$142_{7/2}-\mathit{5237}_{7/2}$	−.09	--
30R	2620.344	38151.54	(.118) 1.816	$217_{7/2}-\mathit{5992}_{7/2}$	+.03	11
10	2621.144	38139.90		$164_{3/2}-\mathit{5446}_{3/2}$	+.01	--
15	2621.975	38127.81	(.510)	$151_{1/2}-\mathit{5329}_{3/2}$	−.02	--
20	2623.285	38108.76	(**.185**, .554, .919)	$117_{9/2}-\mathit{4986}_{7/2}$	+.06	--
8	2625.041	38083.28		$115_{5/2}-\mathit{4966}_{3/2}$	+.09	--
3	2625.128	38082.02		$164_{3/2}-\mathit{5440}_{5/2}$	−.08	--
7	2625.806	38072.19		$157_{5/2}-\mathit{5384}_{3/2}$	+.08	--
1	2626.200	38066.48		$194_{5/2}-\mathit{5752}_{5/2}$	+.06	--
5	2626.636	38060.16		$204_{3/2}-\mathit{5854}_{1/2}$	+.01	--
1	2627.450	38048.36		$138_{3/2}-\mathit{5187}_{3/2}$	+.05	--
8	2630.150	38009.31		$217_{7/2}-\mathit{5978}_{7/2}$	+.04	--
7	2630.754	38000.59		$150_{7/2}-\mathit{5305}_{5/2}$	+.04	--
20	2631.569	37988.81		$115_{5/2}-\mathit{4957}_{5/2}$	−.36	--
10	2633.006	37968.08		$157_{5/2}-\mathit{5373}_{7/2}$	+.04	--
20	2633.614	37959.32	(.611) .555	$151_{1/2}-\mathit{5312}_{3/2}$	+.02	--
(2h)	2633.775	37957.00		$115_{5/2}-\mathit{4954}_{5/2}$	.00	7
2	2634.908	37940.68		$164_{3/2}-\mathit{5426}_{5/2}$	+.01	--
(1)	2635.29	37935.2		$166_{9/2}-\mathit{5455}_{11/2}$	−.1	13
2	2636.019	37924.68		$244_{5/2}-\mathit{6235}_{7/2}$	−.05	--
100R	2636.637	37915.79	(**.227**, .691) .726, **1.164**	$0_{5/2}-\mathit{3791}_{3/2}$	−.08	--
10	2641.173	37850.68		{ $146_{5/2}-\mathit{5247}_{7/2}$	−.17	--
				{ $204_{3/2}-\mathit{5833}_{5/2}$	−.01	--
60R	2642.752	37828.07	(.754, 1.217, 1.679, **2.144**) .349, .821, **1.293**, 1.765, 2.237	$117_{9/2}-\mathit{4958}_{9/2}$	−.02	--
3	2643.092	37823.21		$150_{7/2}-\mathit{5288}_{5/2}$	+.06	--
5	2644.768	37799.23		$150_{7/2}-\mathit{5285}_{7/2}$	−.02	--
10	2645.804	37784.44		$142_{7/2}-\mathit{5200}_{9/2}$	−.07	--
30R	2647.128	37765.54	(**.302**, .905, 1.508)	$0_{5/2}-\mathit{3776}_{7/2}$	−.11	--
2	2647.240	37763.95		$138_{3/2}-\mathit{5159}_{5/2}$	−.01	--
7	2648.100	37751.67		$146_{5/2}-\mathit{5237}_{7/2}$	+.01	--
50R	2649.050	37738.14	(.564, .934, **1.305**) .640, 1.009, **1.379**, 1.749, 2.118	$142_{7/2}-\mathit{5195}_{7/2}$	−.02	--
10	2649.584	37730.53		$172_{1/2}-\mathit{5496}_{1/2}$	−.02	--
100R	2651.903	37697.55	(.375, 1.105, **1.833**) .128, .858, **1.581**, 2.311, 3.040	$0_{5/2}-\mathit{3769}_{5/2}$	−.11	--
20	2652.911	37683.22		$150_{7/2}-\mathit{5274}_{9/2}$	+.11	--
40R	2654.120	37666.06	(000) 1.137	$115_{5/2}-\mathit{4925}_{3/2}$	.00	--
10	2654.773	37656.79		$146_{5/2}-\mathit{5227}_{3/2}$	−.03	--
10	2655.178	37651.05		$138_{3/2}-\mathit{5147}_{5/2}$	+.02	--
15	2655.844	37641.61	(0w) 1.186h	$163_{11/2}-\mathit{5394}_{11/2}$	+.03	10
2h	2656.486	37632.50		$194_{5/2}-\mathit{5709}_{7/2}$	+.10	--
5	2656.950	37625.93		$247_{7/2}-\mathit{6235}_{7/2}$	+.02	
10	2657.449	37618.87		$217_{7/2}-\mathit{5939}_{9/2}$	−.02	--
7	2658.688	37601.34	(.318)	$164_{3/2}-\mathit{5392}_{1/2}$	−.05	--
20	2659.024	37596.59	(.135) 1.058h, 1.341h	$146_{5/2}-\mathit{5221}_{5/2}$	−.06	11
10	2659.792	37585.74	(.120)	$263_{13/2}-\mathit{6393}_{13/2}$	−.06	--
2	2660.040	37582.22		$231_{5/2}-\mathit{6073}_{5/2}$	−.25	--
2	2661.223	37565.52		$157_{5/2}-\mathit{5333}_{7/2}$	.00	--
5	2661.760	37557.95		$166_{9/2}-\mathit{5417}_{7/2}$	−.02	--
4	2662.196	37551.80		$150_{7/2}-\mathit{5261}_{7/2}$	−.02	--
50	2663.633	37531.54	(**.235**, .702, 1.168, 1.635, 2.103)	$117_{9/2}-\mathit{4928}_{11/2}$	−.01	12
10	2664.215	37523.35	(000) 1.307	$157_{5/2}-\mathit{5329}_{3/2}$	+.05	--
15	2664.807	37515.02	(.272, **.818**)	$164_{3/2}-\mathit{5384}_{3/2}$	.00	--
1	2666.421	37492.30		$173_{7/2}-\mathit{5482}_{5/2}$	+.10	--
20	2667.130	37482.34	(0w) 1.465 wC	$173_{7/2}-\mathit{5481}_{9/2}$	+.04	--
2	2668.194	37467.39		$166_{9/2}-\mathit{5408}_{7/2}$	.00	--
5	2669.868	37443.89		$115_{5/2}-\mathit{4903}_{7/2}$	.00	--
20	2670.236	37438.74	(.316, **.542**)	$115_{5/2}-\mathit{4902}_{5/2}$	−.07	--
30	2670.790	37430.97	(.672, 1.092, **1.513**) .919, **1.344**, 1.769	$142_{7/2}-\mathit{5164}_{7/2}$	+.01	--
3	2671.329	37423.42		$263_{13/2}-\mathit{6377}_{13/2}$	−.02	--
40	2671.842	37416.24	(.619, 1.022, 1.424, **1.826**) .527, .927, **1.328**, 1.728, 2.129	$117_{9/2}-\mathit{4917}_{9/2}$	.00	--
5	2672.420	37408.15		$194_{5/2}-\mathit{5686}_{5/2}$	−.02	--
200R	2674.339	37381.30	(.481, 1.440, **2.399**) .490, **1.458**, 2.423, 3.383	$0_{5/2}-\mathit{3738}_{3/2}$	−.11	--
5	2674.917	37373.23		$142_{7/2}-\mathit{5159}_{5/2}$	+.01	--
9	2676.088	37356.88		$138_{3/2}-\mathit{5118}_{3/2}$	.00	--
15	2677.764	37333.49	(000) 1.281 D	$146_{5/2}-\mathit{5195}_{7/2}$	− 07	--
3	2678.054	37329.45		$166_{9/2}-\mathit{5394}_{11/2}$	.00	--
20	2679.096	37314.93	(.459, .784, 1.108)	$150_{7/2}-\mathit{5237}_{7/2}$	.00	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	2679.914	37303.55	(.524) 1.834	$151_{1/2}$—$5246_{1/2}$	−.01	
9	2681.010	37288.29	(.331)	$157_{5/2}$—$5305_{5/2}$	−.03	--
(2)	2682.067	37273.60	------	$115_{5/2}$—$4885_{7/2}$	−.04	7
5	2682.368	37269.41	------	$142_{7/2}$—$5148_{9/2}$	−.02	--
3	2683.030	37260.22	------	$142_{7/2}$—$5147_{5/2}$	−.07	--
40	2683.558	37252.89	(0w) .959 D	$146_{5/2}$—$5187_{3/2}$	−.08	--
3	2684.382	37241.46	------	$194_{5/2}$—$5669_{7/2}$	−.06	--
3	2684.905	37234.21	------	$221_{9/2}$—$5939_{9/2}$	−.04	--
100	2688.528	37184.03	(0w) 1.456 B	$157_{5/2}$—$5296_{3/2}$	−.01	--
20H	2690.247	37160.27	------	$163_{11/2}$—$5346_{11/2}$	−.15	--
4	2693.224	37119.20	------	$166_{9/2}$—$5373_{7/2}$	+.02	--
8	2693.719	37112.38	------	$151_{1/2}$—$5227_{3/2}$	−.01	--
8	2693.822	37110.97	------	$157_{5/2}$—$5288_{5/2}$	+.05	--
3	2694.034	37108.03	------	$138_{3/2}$—$5093_{5/2}$	−.03	--
20	2694.394	37103.08	(.434, .726, 1.018, **1.309**) .202, .498, .793, 1.092	$117_{9/2}$—$4885_{7/2}$	.00	--
15	2695.562	37087.00	(000) 1.268	$157_{5/2}$—$5285_{7/2}$	−.02	--
2	2696.159	37078.79	------	$173_{7/2}$—$5440_{5/2}$	.00	--
7	2696.640	37072.18	------	$163_{11/2}$—$5337_{9/2}$	−.02	--
20	2697.265	37063.59	(.664) 1.284, **2.616**	$0_{5/2}$—$3706_{3/2}$	−.06	--
3	2697.368	37062.18	------	$164_{3/2}$—$5338_{5/2}$	−.04	--
15h	2698.794	37042.59	(**.131**, .402) 1.598	$204_{3/2}$—$5752_{5/2}$	+.01	--
15	2699.580	37031.81	------	$117_{9/2}$—$4878_{7/2}$	−.02	--
3	2699.978	37026.35	------	$146_{5/2}$—$5164_{7/2}$	−.01	--
8	2700.891	37013.84	------	$163_{11/2}$—$5332_{9/2}$	+.04	--
2	2700.977	37012.66	------	$142_{7/2}$—$5122_{7/2}$	−.12	--
3	2704.179	36968.83	------	$146_{5/2}$—$5159_{5/2}$	+.21	--
20	2704.369	36966.23	(.191, **.572**) 1.147, **1.522**, 1.896†	$164_{3/2}$—$5329_{3/2}$	+.02	--
6	2704.769	36960.77	------	$164_{1/2}$—$5328_{3/2}$	.00	--
6	2705.076	36956.58	------	$146_{5/2}$—$5157_{3/2}$	−.01	--
15	2706.056	36943.18	(**.101**, .307, .506, .705)	$150_{7/2}$—$5200_{9/2}$	.00	--
5	2706.480	36937.40	------	$173_{7/2}$—$5426_{5/2}$	+.04	--
10	2707.852	36918.69	(0w) .901h	$263_{13/2}$—$6326_{11/2}$	+.02	--
2	2711.382	36870.62	------	$224_{3/2}$—$5929_{3/2}$	.00	--
20	2712.476	36855.76	------	$146_{5/2}$—$5147_{5/2}$	+.07	--
15	2713.024	36848.31	------	$166_{9/2}$—$5346_{11/2}$	+.02	--
10	2713.160	36846.47	------	$173_{7/2}$—$5417_{7/2}$	+.04	--
8	2713.664	36839.63	------	$157_{5/2}$—$5261_{7/2}$	+.04	--
300R	2715.474	36815.06	(**.131**, .397, .659, .925, 1.197) **.070**, .336, .603, .869, 1.133	$117_{9/2}$—$4856_{11/2}$	−.05	--
30r	2715.770	36811.05	------	$142_{7/2}$—$5102_{9/2}$	−.05	--
20	2716.246	36804.60	------	$270_{13/2}$—$6393_{13/2}$	−.02	--
15	2716.754	36797.72	(.280, **.859**)	$164_{3/2}$—$5312_{3/2}$	+.04	--
(3)	2718.659	36771.95	------	$231_{5/2}$—$5992_{7/2}$	−.15	7
15	2719.536	36760.08	(.442) A	$166_{9/2}$—$5337_{9/2}$	+.01	--
9	2719.848	36755.86	------	$173_{7/2}$—$5408_{7/2}$	+.01	--
2	2720.364	36748.89	------	$224_{3/2}$—$5917_{5/2}$	−.01	--
10	2720.659	36744.91	------	$138_{3/2}$—$5057_{3/2}$	+.01	--
7	2721.675	36731.20	------	$164_{3/2}$—$5305_{5/2}$	−.03	--
80	2722.702	36717.35	(**.100**, .286, .470)	$142_{7/2}$—$5093_{5/2}$	+.03	--
10	2723.356	36708.52	------	$151_{1/2}$—$5187_{3/2}$	−.02	--
30	2723.836	36702.05	------	$157_{5/2}$—$5247_{5/2}$	+.16	--
5h	2724.437	36693.96	------	$197_{1/2}$—$5645_{1/2}$	.00	--
9	2724.686	36690.60	------	$172_{1/2}$—$5392_{1/2}$	.00	--
3	2724.934	36687.27	------	$173_{7/2}$—$5401_{7/2}$	−.10	--
20	2727.548	36652.10	(.456, .808, **1.159**)	$142_{7/2}$—$5086_{7/2}$	−.04	--
3h	2728.286	36642.19	------	$270_{13/2}$—$6377_{13/2}$	−.07	--
10	2728.628	36637.60	(**.172**, .496)	$138_{3/2}$—$5046_{5/2}$	−.08	--
2	2729.209	36629.80	------	$231_{5/2}$—$5978_{7/2}$	−.06	--
4	2729.427	36626.88	------	$164_{3/2}$—$5296_{3/2}$	−.07	--
10	2729.635	36624.09	------	$164_{3/2}$—$5295_{3/2}$	+.01	--
10	2730.826	36608.12	------	$146_{5/2}$—$5122_{7/2}$	−.06	--
3h	2731.228	36602.73	------	$157_{5/2}$—$5237_{7/2}$	+.03	--
2	2731.416	36600.20	------	$115_{5/2}$—$4818_{7/2}$	−.04	--
50R	2732.206	36589.62	------	$150_{7/2}$—$5164_{7/2}$	−.01	--
10	2734.31	36561.5	------	$146_{5/2}$—$5118_{3/2}$	.0	--
10	2734.886	36553.78	------	$164_{3/2}$—$5288_{5/2}$	−.05	--
6	2736.522	36531.92	------	$150_{7/2}$—$5159_{5/2}$	+.03	--
10	2736.767	36528.65	------	$273_{11/2}$—$6377_{13/2}$	+.13	--
15	2738.323	36507.90	(0w) 1.148C	$157_{5/2}$—$5227_{3/2}$	+.04	--
4	2738.625	36503.87	------	$217_{7/2}$—$5827_{9/2}$	−.04	--
4	2740.074	36484.56	------	$217_{7/2}$—$5826_{7/2}$	−.07	--
15	2741.967	36459.38	------	$221_{9/2}$—$5861_{11/2}$	+.10	--
10	2742.856	36447.57	------	$157_{5/2}$—$5221_{5/2}$	−.12	--
2	2743.122	36444.02	------	$194_{5/2}$—$5590_{3/2}$	−.10	--
3	2743.650	36437.01	------	$138_{3/2}$—$5026_{3/2}$	−.09	--
15	2743.874	36434.04	------	$163_{11/2}$—$5274_{9/2}$	−.11	--
20	2744.207	36429.62	------	$117_{9/2}$—$4818_{7/2}$	−.06	--
2	2745.014	36418.91	------	$150_{7/2}$—$5147_{5/2}$	−.05	--
5H	2745.564	36411.62	------	$244_{5/2}$—$6083_{5/2}$	−.08	--
15	2745.867	36407.60	(.130) 1.210h	$173_{7/2}$—$5373_{7/2}$	−.04	--
20r	2747.438	36386.79	(.291) 1.233A	$115_{5/2}$—$4797_{5/2}$	−.07	--
1	2747.627	36384.28	------	$204_{3/2}$—$5686_{3/2}$	−.05	--
6	2750.322	36348.63	------	$115_{5/2}$—$4793_{7/2}$	+.04	--
3	2751.51	36333.0	------	$138_{3/2}$—$5015_{5/2}$	+.2	--
15	2752.852	36315.22	------	$115_{5/2}$—$4789_{5/2}$	−.04	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	2753.046	36312.66	------	$146_{5/2}$—$5093_{5/2}$	−.06	--
20	2755.212	36284.12	------	$138_{3/2}$—$5011_{5/2}$	−.04	--
40r	2757.996	36247.49	(0w) 1.401h†	$146_{5/2}$—$5086_{7/2}$	−.05	--
10h	2758.05	36246.7	------	$142_{7/2}$—$5046_{5/2}$	−.2	--
10	2758.706	36238.17	------	$166_{9/2}$—$5285_{7/2}$	+.01	--
20	2761.926	36195.92	(0w) 1.156C	$115_{5/2}$—$4777_{3/2}$	−.03	--
4	2762.786	36184.66	------	$157_{5/2}$—$5195_{7/2}$	+.06	--
40	2763.295	36177.99	(**.118**, .342, .563)	$117_{9/2}$—$4793_{7/2}$	−.04	--
40	2763.792	36171.49	(.246h) 1.166h	$150_{7/2}$—$5122_{7/2}$	+.04	--
9	2766.051	36141.94	------	$164_{3/2}$—$5246_{1/2}$	.00	--
30	2766.390	36137.52	------	$270_{13/2}$—$6326_{11/2}$	+.03	--
7	2766.548	36135.45	(000) 1.256	$150_{7/2}$—$5119_{9/2}$	+.15	--
5	2767.576	36122.03	------	$166_{9/2}$—$5274_{9/2}$	+.01	--
20	2767.744	36119.84	(**.095**, .283) **1.023**, 1.212, 1.400	$115_{5/2}$—$4770_{3/2}$	+.02	--
6H	2768.282	36112.81	------	$247_{7/2}$—$6083_{5/2}$	−.07	--
15	2768.851	36105.39	(.176, .515, .853, 1.192), **.337**, .000, .337, .675, 1.014	$117_{9/2}$—$4785_{11/2}$	−.02	--
3	2768.954	36104.05	------	$157_{5/2}$—$5187_{3/2}$	+.04	--
4	2769.735	36093.87	------	$142_{7/2}$—$5031_{7/2}$	+.03	--
70R	2770.417	36084.99	(0w) 1.021C	$115_{5/2}$—$4766_{7/2}$	−.06	--
15	2771.609	36069.47	------	$138_{3/2}$—$4989_{3/2}$	+.02	--
8	2772.421	36058.90	------	$173_{7/2}$—$5338_{5/2}$	−.01	--
3	2772.687	36055.44	------	$172_{1/2}$—$5329_{3/2}$	+.02	--
20	2773.109	36049.96	(.578) 1.950	$172_{1/2}$—$5328_{1/2}$	−.02	--
2	2773.214	36048.59	------	$173_{7/2}$—$5337_{9/2}$	+.06	--
10	2774.383	36033.41	(.530)†	$138_{3/2}$—$4985_{1/2}$	.00	--
10	2775.126	36023.76	------	$273_{11/2}$—$6326_{11/2}$	+.01	--
10	2775.126	36023.76	------	$273_{11/2}$—$6326_{11/2}$	+.01	--
2	2775.457	36019.47	------	$224_{3/2}$—$5844_{3/2}$	−.21	--
15	2775.639	36017.11	(.457) 1.010	$151_{1/2}$—$5118_{3/2}$	.00	--
10	2775.948	36013.10	------	$247_{7/2}$—$6073_{5/2}$	+.04	--
1	2776.560	36005.15	------	$173_{7/2}$—$5333_{7/2}$	+.03	--
8	2777.223	35996.56	------	$194_{5/2}$—$5545_{7/2}$	−.03	--
15	2777.71	35990.3	------	$173_{7/2}$—$5332_{9/2}$	+.2	--
10	2778.498	35980.04	(**.111**, .331, .550) **.537**, **.756**, .976	$142_{7/2}$—$5019_{9/2}$	−.04	--
10	2779.082	35972.49	------	$231_{5/2}$—$5912_{3/2}$	.00	--
15	2779.290	35969.79	------	$150_{7/2}$—$5102_{9/2}$	+.02	--
15	2780.850	35949.61	------	$146_{5/2}$—$5057_{3/2}$	+.05	--
30r	2781.434	35942.06	(**.072**, .217, .363) 1.894	$142_{7/2}$—$5015_{5/2}$	+.05	--
7	2783.141	35920.03	------	$163_{11/2}$—$5222_{13/2}$	−.02	--
60	2783.570	35914.49	(.164, .504, .844, 1.184), 2.614	$117_{9/2}$—$4766_{7/2}$	.00	--
50r	2785.206	35893.39	(**.085**, .256, .427) 1.179	$142_{7/2}$—$5011_{5/2}$	−.03	--
10	2785.424	35890.58	------	$164_{3/2}$—$5221_{5/2}$	−.02	--
9	2785.714	35886.85	(.689)	$172_{1/2}$—$5312_{3/2}$	−.04	--
15	2786.138	35881.39	(0w) 1.300h	$217_{7/2}$—$5765_{7/2}$	−.06	--
3	2786.450	35877.37	------	$157_{5/2}$—$5164_{7/2}$	−.03	--
20r	2786.558	35875.98	(**.114**, .350, .575) **.580**, .810, 1.040, 1.270	$150_{7/2}$—$5093_{5/2}$	−.01	--
7	2789.173	35842.34	------	$146_{5/2}$—$5046_{5/2}$	.00	--
15	2789.268	35841.12	(334h)	$138_{3/2}$—$4966_{3/2}$	+.09	--
30	2790.939	35819.67	(.457, **.755**) .566, .867, **1.168**, 1.468, 1.771	$157_{5/2}$—$5159_{5/2}$	+.01	--
50r	2791.290	35815.16	(.398) .734C	$163_{11/2}$—$5212_{13/2}$	−.04	--
10	2791.626	35810.85	------	$150_{7/2}$—$5086_{7/2}$	+.04	--
2	2792.940	35794.01	------	$263_{13/2}$—$6214_{11/2}$	.00	--
3	2794.472	35774.38	------	$115_{5/2}$—$4735_{7/2}$	−.02	--
10l	2796.078	35753.84	------	$166_{9/2}$—$5237_{7/2}$	.00	--
2	2796.467	35748.87	------	$217_{7/2}$—$5752_{5/2}$	−.04	--
9	2796.616	35746.96	------	$138_{3/2}$—$4957_{5/2}$	−.03	--
10	2798.104	35727.95	(0w) 1.385B	$173_{7/2}$—$5305_{5/2}$	+.03	--
3	2799.245	35713.39	(.434) 2.198	$172_{1/2}$—$5295_{3/2}$	+.10	--
4	2800.746	35694.25	------	$163_{11/2}$—$5200_{9/2}$	+.03	--
3	2801.184	35688.66	------	$266_{5/2}$—$6235_{7/2}$	−.04	--
5	2804.506	35646.40	------	$142_{7/2}$—$4986_{7/2}$	+.04	--
4	2805.105	35638.78	------	$163_{11/2}$—$5194_{11/2}$	−.01	--
7	2805.977	35627.71	(.496) .987?	$224_{3/2}$—$5805_{3/2}$	−.04	--
20	2807.86	35603.8	(**.198**, 579, .960)	$117_{9/2}$—$4735_{7/2}$	.0	--
4h	2808.456	35596.27	------	$217_{7/2}$—$5737_{7/2}$	−.08	--
3	2809.109	35587.98	------	$115_{5/2}$—$4717_{3/2}$	−.1	--
15	2812.073	35550.48	(**.104**, .306, .509) 1.153, 1.358, 1.562, **1.766**	$173_{7/2}$—$5288_{5/2}$	−.04	--
20	2812.356	35546.91	(.208, **.626**) 1.085, **1.503**, 1.922	$164_{3/2}$—$5187_{3/2}$	−.01	--
15	2813.112	35537.34	------	$146_{5/2}$—$5015_{5/2}$	−.07	--
20h	2813.964	35526.59	(.132) 1.277h	$173_{7/2}$—$5285_{7/2}$	−.03	--
40R	2814.676	35517.60	(.196, .587, **.968**) .309, .695, **1.081**, 1.467, 1.855	$115_{5/2}$—$4710_{5/2}$	−.05	--
10	2815.640	35505.45	------	$217_{7/2}$—$5728_{9/2}$	−.01	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	2816.319	35496.89	(.115) 1.191	$221_{9/2}-5765_{3/2}$	+.08	--
30	2816.954	35488.89	(.294, .879, **1.463**) .274, .858, **1.441**, 2.025, 2.609	$146_{5/2}-5011_{5/2}$	+.07	--
4	2819.528	35456.49		$239_{11/2}-5941_{11/2}$	+.03	--
50	2819.951	35451.17	(.699, 1.089, 1.528, **1.968**) .000, .441, .881, **1.313**, 1.745, 2.177, 2.610	$117_{9/2}-4720_{9/2}$	−.04	--
4	2820.976	35438.29		$239_{11/2}-5939_{9/2}$	.00	--
15	2822.123	35423.88	(.108, **.321**) 1.167, 1.376	$138_{3/2}-4925_{3/2}$	−.02	--
9	2822.407	35420.32		$115_{5/2}-4700_{3/2}$ $204_{3/2}-5590_{3/2}$	−.06 +.04	-- --
15	2823.193	35410.46		$173_{7/2}-5274_{9/2}$	−.02	--
2	2823.592	35405.46		$150_{7/2}-5046_{5/2}$	−.15	--
20	2824.245	35397.27	(.163) 1.202h	$217_{7/2}-5717_{7/2}$	−.03	--
20	2825.458	35382.07	(.483, .672, **.861**)	$166_{9/2}-5200_{9/2}$	−.02	--
3	2826.759	35365.79		$142_{7/2}-4958_{9/2}$	+.04	--
4	2826.812	35365.13		$194_{5/2}-5482_{5/2}$	.00	--
7	2827.284	35359.22		$244_{5/2}-5978_{7/2}$	−.05	--
30	2827.523	35356.24	(**.111**, .333, .553) 2.161	$142_{7/2}-4957_{5/2}$	−.01	--
7	2827.834	35352.35		$271_{7/2}-6249_{7/2}$	−.03	--
4	2829.164	35335.73	(0w) 1.160h	$166_{9/2}-5195_{7/2}$	−.01	--
10	2829.887	35326.71		$166_{9/2}-5194_{11/2}$	+.05	--
6	2830.096	35324.09		$142_{7/2}-4954_{5/2}$	−.01	--
9	2830.833	35314.89		$217_{7/2}-5709_{7/2}$	.00	--
2	2833.02	35287.7		$231_{5/2}-5844_{3/2}$	.0	--
40	2834.077	35274.47	(.424, 1.270) −.124, 725, 1.572	$146_{5/2}-4989_{3/2}$	+.36	12, 14
15	2834.608	35267.87		$0_{5/2}-3526_{5/2}$	+.07	--
5	2835.034	35262.57		$164_{3/2}-5159_{5/2}$	.00	11
3	2835.844	35252.50		$150_{7/2}-5031_{7/2}$	−.01	--
6	2836.005	35250.50		$164_{3/2}-5157_{3/2}$	−.04	--
7hs	2836.696	35241.91		$146_{5/2}-4986_{7/2}$	+.15	--
30	2837.547	35231.35	(000) 1.190	$221_{9/2}-5739_{11/2}$	−.05	--
8	2839.193	35210.92	(.168) 1.148†?	$197_{1/2}-5496_{1/2}$	−.02	--
50r	2840.348	35196.60	(000) 1.505	$138_{3/2}-4902_{5/2}$	−.05	--
3	2840.979	35188.79		$272_{9/2}-6235_{7/2}$	+.01	--
60r	2843.000	35163.77	(.159) 1.354A	$157_{5/2}-5093_{5/2}$	+.01	--
20	2844.162	35149.40	(**.293**, .879) **.406**, .992, 1.578	$115_{5/2}-4673_{3/2}$	−.02	--
8	2846.478	35120.80		$221_{9/2}-5728_{9/2}$	−.02	--
6	2847.744	35105.19		$231_{5/2}-5826_{7/2}$	−.03	--
2h	2848.112	35100.66		$150_{7/2}-5015_{5/2}$	−.02	--
3	2848.280	35098.59		$157_{5/2}-5086_{7/2}$	+.01	--
3	2848.400	35097.11		$151_{1/2}-5026_{3/2}$	−.22	--
60r	2850.975	35065.41	(.122) 1.302	$115_{5/2}-4664_{5/2}$	−.05	--
2	2851.744	35055.95		$194_{5/2}-5451_{7/2}$	.00	--
10	2852.054	35052.15		$150_{7/2}-5011_{5/2}$	+.06	--
20	2852.841	35042.48		$173_{7/2}-5237_{7/2}$	+.18	--
10	2855.528	35009.50	(000) 1.352	$194_{5/2}-5446_{3/2}$	−.01	--
4	2857.808	34981.58		$272_{9/2}-6214_{11/2}$	−.04	--
(4)	2857.985	34979.41		$275_{9/2}-6249_{7/2}$	+.21	7
20	2860.074	34953.86		$142_{7/2}-4917_{9/2}$	−.04	--
15	2860.254	34951.66		$194_{5/2}-5440_{5/2}$ $146_{5/2}-4957_{5/2}$	−.06 +.01	-- --
2	2862.009	34930.22		$221_{9/2}-5709_{7/2}$	−.03	--
15	2862.890	34919.48		$146_{5/2}-4954_{5/2}$	−.02	--
15	2864.563	34899.09		$273_{11/2}-6214_{11/2}$	.00	--
10	2864.831	34895.82		$231_{5/2}-5805_{3/2}$	+.05	--
3	2865.526	34887.37		$173_{7/2}-5221_{5/2}$	+.08	--
2	2865.612	34886.32		$163_{11/2}-5119_{9/2}$	−.02	--
30	2867.193	34867.07	(000) 1.166 C	$166_{9/2}-5148_{9/2}$	+.06	--
(5)	2868.151	34855.43	(375)	$164_{3/2}-5118_{3/2}$	−.06	3
3	2869.764	34835.84		$275_{9/2}-6235_{7/2}$	+.02	--
30	2871.82	34810.9	(.233) 1.543h†	$142_{7/2}-4903_{7/2}$	−.1	--
10	2872.304	34805.04	(000) 1.169	$150_{7/2}-4986_{7/2}$	+.01	--
10	2872.668	34800.63		$157_{5/2}-5057_{3/2}$	+.03	--
30	2875.282	34768.99	(000) 1.260	$115_{5/2}-4635_{7/2}$	−.04	--
1	2878.538	34729.66		$151_{1/2}-4989_{3/2}$	−.02	--
20	2879.271	34720.82		$163_{11/2}-5102_{9/2}$	+.01	--
3	2879.391	34719.37		$194_{5/2}-5417_{7/2}$	+.01	--
1	2880.212	34709.48		$197_{1/2}-5446_{3/2}$	−.01	--
6	2880.840	34701.91	(0w) .865 C	$244_{5/2}-5912_{3/2}$	+.01	--
10	2881.546	34693.41		$157_{5/2}-5046_{5/2}$	+.03	--
30	2883.444	34670.57	(0w) 1.694 B	$173_{7/2}-5200_{9/2}$	+.02	--
15	2884.045	34663.35		$239_{11/2}-5861_{11/2}$	+.03	--
4	2885.120	34650.44		$224_{3/2}-5707_{1/2}$	−.04	--
10	2885.930	34640.72		$142_{7/2}-4885_{7/2}$	−.02	--
4	2886.312	34636.13		$172_{1/2}-5187_{3/2}$	.00	--
15	2886.935	34628.66		$194_{5/2}-5408_{7/2}$ $275_{9/2}-6214_{11/2}$ $146_{5/2}-4925_{3/2}$	−.12 .00 +.10	-- -- --
15	2887.307	34624.19		$173_{7/2}-5195_{7/2}$	−.01	--
300R	2887.676	34619.76	(.383, .594, .805, **1.016**) .603, .815, 1.026, 1.239, **1.452**, 1.664, 1.877, 2.089, 2.301†.	$117_{9/2}-4637_{9/2}$	+.03	--
4	2888.456	34610.42		$166_{9/2}-5122_{7/2}$	+.06	--
20	2889.448	34598.54	(**.132**, .390, .678).	$117_{9/2}-4635_{7/2}$	+.07	--
20	2891.481	34574.21		$166_{9/2}-5119_{9/2}$	.00	--
30	2891.878	34569.46	(.137) 1.550h	$142_{7/2}-4878_{7/2}$	−.03	--
20	2892.634	34560.43	(0w)	$194_{5/2}-5401_{7/2}$	+.13	--
10	2894.322	34540.28	(**.081**, .245, .411) **.754**, .915, 1.076, 1.237.	$157_{5/2}-5031_{7/2}$	+.02	--
4H	2894.969	34532.56		$217_{7/2}-5630_{9/2}$	−.01	--
2	2895.328	34528.27		$115_{5/2}-4611_{5/2}$	−.01	--
15	2895.650	34524.43		$150_{7/2}-4958_{9/2}$	+.01	--
60R	2896.012	34520.12	(**.251**, .747, 1.240) **.220**, .715, 1.211, 1.696, 2.191.	$0_{5/2}-3452_{7/2}$	−.13	--
8	2896.446	34514.95		$150_{7/2}-4957_{5/2}$	+.03	--
10	2897.585	34501.38	(.550) .707†?	$151_{1/2}-4966_{3/2}$	+.12	--
10	2898.785	34487.11	(.071) 1.506	$204_{3/2}-5496_{1/2}$	−.01	--
3	2902.112	34447.57		$247_{7/2}-5917_{5/2}$	+.06	--
100	2902.48	34443.2	(0w) 1.186B	$224_{3/2}-5686_{3/2}$	.0	15
10	2905.393	34408.67		$166_{9/2}-5102_{9/2}$	−.01	--
30	2905.584	34406.41	(**.173**, 515, .858)†.	$146_{5/2}-4903_{7/2}$	+.02	--
15	2906.016	34401.29	(.881) .596, .956, **1.312**, 1.665, 2.018†.	$146_{5/2}-4902_{5/2}$	−.02	--
(2h)	2906.11	34400.2		$224_{3/2}-5682_{5/2}$	+.3	7
10	2907.100	34388.46	(.266) A	$157_{5/2}-5015_{5/2}$	+.01	--
2h	2907.434	34384.51		$194_{5/2}-5384_{3/2}$	−.13	--
2	2908.704	34369.50		$231_{5/2}-5752_{5/2}$	.00	--
60r	2909.820	34356.32	(.139) 1.234 A	$163_{11/2}-5066_{11/2}$	−.04	--
9	2910.084	34353.21	(000) 1.334	$115_{5/2}-4593_{7/2}$	−.01	--
2	2911.094	34341.28		$204_{3/2}-5482_{5/2}$	−.01	--
8	2911.232	34339.65		$172_{1/2}-5157_{3/2}$	−.10	--
3	2912.915	34319.82		$280_{5/2}-6235_{7/2}$	+.01	--
10	2913.154	34317.00	(.392) A	$173_{7/2}-5164_{7/2}$	.00	--
3	2915.246	34292.37		$115_{5/2}-4587_{3/2}$	−.01	--
3	2916.256	34280.50		$194_{5/2}-5373_{7/2}$	−.07	--
2	2918.052	34259.41		$173_{7/2}-5159_{5/2}$	+.15	--
1	2918.760	34251.10		$221_{9/2}-5641_{9/2}$	−.08	--
7	2918.877	34249.73		$166_{9/2}-5086_{7/2}$	+.01	--
20	2919.407	34243.50	(.372, **1.146**) .559, **1.307**, 2.057†?.	$164_{3/2}-5057_{3/2}$	−.01	--
3	2921.676	34216.91		$231_{5/2}-5737_{7/2}$	−.03	--
20	2924.60	34182.7		$117_{9/2}-4593_{7/2}$	.0	--
20	2925.195	34175.75	(.214h) 1.242h	$266_{5/2}-6083_{5/2}$	+.08	--
2d	2925.606	34170.95		$197_{1/2}-5392_{1/2}$	−.04	--
1	2926.124	34164.90		$146_{5/2}-4878_{7/2}$	+.01	--
9	2926.934	34155.45		$173_{7/2}-5148_{9/2}$	−.02	--
40	2927.42	34149.7	(**.184**, .549, .912, 1.111, 1.302).	$117_{9/2}-4590_{11/2}$	.0	--
5	2927.714	34146.34		$173_{7/2}-5147_{5/2}$	+.01	--
2	2927.852	34144.73		$138_{3/2}-4797_{5/2}$	+.03	--
7	2928.576	34136.29	(**.282**, .854)	$164_{3/2}-5046_{5/2}$	.00	--
10	2929.48	34125.7		$217_{7/2}-5589_{7/2}$	−.1	--
10	2929.530	34125.18		$157_{5/2}-4989_{3/2}$	+.03	--
20	2930.610	34112.61	(0w) 1.110B	$150_{7/2}-4917_{9/2}$	+.04	--
4	2932.223	34093.84		$613_{11/2}-5040_{9/2}$	−.02	--
7	2932.317	34092.74		$157_{5/2}-4986_{7/2}$	−.06	--
5	2934.010	34073.08		$138_{3/2}-4789_{5/2}$	−.02	--
15	2936.500	34044.18	(0w) 1.408B	$166_{9/2}-5066_{11/2}$	−.05	--
8	2937.810	34029.01	(.253) .518	$224_{3/2}-5645_{1/2}$	−.03	--
5	2938.772	34017.87		$231_{5/2}-5717_{7/2}$	−.02	--
2	2938.841	34017.07		$244_{5/2}-5844_{3/2}$	−.04	--
9	2941.557	33985.66	(.127) 1.383h	$204_{3/2}-5446_{3/2}$	−.01	--
50r	2943.145	33967.32	(.160, .475, .800, **1.125**) .456, .775, 1.094, **1.411**, 1.730, 2.049, 2.368.	$142_{7/2}-4818_{7/2}$	−.02	--
10	2943.382	33964.58		$150_{7/2}-4902_{5/2}$	.00	--
8	2944.320	33953.77	(.168)	$138_{3/2}-4777_{3/2}$	.00	--
3	2945.106	33944.71		$172_{1/2}-5118_{3/2}$	+ 01	--
5	2945.886	33935.72	(.709)	$164_{3/2}-5026_{3/2}$	+.01	--
9	2946.572	33927.82	(.192, **.567**) .447, .865, 1.250.	$204_{3/2}-5440_{5/2}$	−.06	--
2h	2948.384	33906.97		$244_{5/2}-5833_{5/2}$	−.05	--
15	2949.088	33898.87	(0w) 1.246h	$173_{7/2}-5122_{7/2}$	+.05	--
7	2949.261	33896.89		$157_{5/2}-4966_{3/2}$	+.16	--
10	2949.880	33889.78		$163_{11/2}-5019_{9/2}$	−.01	--
10	2950.828	33878.89	(000) 1.331	$115_{5/2}-4546_{7/2}$	+.02	--
7	2950.920	33877.84		$194_{5/2}-5333_{7/2}$	−.19	--
15	2954.335	33838.68	(000) 1.478	$138_{3/2}-4765_{1/2}$	+.06	--
6	2954.580	33835.87		$194_{5/2}-5329_{3/2}$	+.04	--
5	2954.688	33834.63		$244_{5/2}-5826_{7/2}$	.00	--
2	2954.968	33831.43		$164_{3/2}-5015_{5/2}$	+.07	--
2	2957.762	33799.47		$150_{7/2}-4885_{7/2}$	+.06	--
7	2958.904	33786.43	(**.080**, .237)	$204_{3/2}-5426_{5/2}$	−.02	--
2h	2959.33	33781.5		$166_{9/2}-5040_{9/2}$	−.2	--
4	2960.296	33770.53		$157_{5/2}-4954_{5/2}$	−.01	--
20	2961.744	33754.03	(**.207**, .607)	$142_{7/2}-4797_{5/2}$	+.07	--
2	2961.880	33752.48		$221_{9/2}-5591_{9/2}$	+.10	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30r	2962.266	33748.08	(.099, .294, **.490**) .787, .983, **1.179**, 1.374, 1.569.	$115_{5/2}-4533_{5/2}$	+.01	--
15	2962.870	33741.20	(000) 1.142h	$221_{9/2}-5589_{7/2}$	+.04	--
2	2964.01	33728.2		$150_{7/2}-4878_{7/2}$	.0	--
80R	2965.112	33715.69	(.474, .809, **1.142**) 1.083, 1.408, **1.733**, 2.057, 2.382†.	$142_{7/2}-4793_{7/2}$	.00	--
2	2965.502	33711.25		$231_{5/2}-5686_{3/2}$	.00	--
150R	2965.756	33708.37	(.119, .358, .596, .834) 2.440†.	$117_{9/2}-4546_{7/}$	+.06	--
2	2966.416	33700.87		$239_{11/2}-5765_{9/2}$	+.02	--
2	2966.746	33697.12		$173_{7/2}-5102_{9/2}$	−.02	--
10	2967.246	33691.43	(000) 1.196	$166_{9/2}-5031_{7/2}$	+.01	--
20	2968.044	33682.38	(**.173**, .521, .870) 1.048, 1.395, 1.742, 2.089, **2.436**.	$142_{7/2}-4789_{5/2}$	+.02	--
3	2968.330	33679.13		$217_{7/2}-5545_{7/2}$	+.05	--
8	2975.023	33603.37		$173_{7/2}-5093_{5/2}$	+.01	--
10	2975.250	33600.80	(.088, .263, **.438**) . . . , **1.273**, . . .	$194_{5/2}-5305_{5/2}$	−.05	--
3	2975.658	33596.20		$271_{7/2}-6073_{5/2}$	+.05	--
40	2976.294	33589.02	(**412.** .816), .535, .930, **1.333.**	$0_{5/2}-3358_{3/2}$	−.10	--
				$117_{9/2}-4534_{9/2}$	−.03	--
9	2977.300	33577.67	(.760) A	$166_{9/2}-5019_{9/2}$	+.01	--
20	2978.152	33568.07	(.432) 1.565, **1.852**, 2.138	$164_{3/2}-4989_{3/2}$	+.01	--
1	2978.622	33562.77		$146_{5/2}-4818_{7/2}$	+.03	--
2	2980.244	33544.50		$231_{5/2}-5669_{7/2}$	−.10	--
20	2980.820	33538.02		$173_{7/2}-5086_{7/2}$	−.16	--
				$115_{5/2}-4512_{3/2}$	+.17	--
7	2981.010	33535.89		$197_{1/2}-5329_{3/2}$	+.08	--
				$247_{7/2}-5826_{7/2}$	+.08	--
2	2981.350	33532.06		$164_{3/2}-4985_{1/2}$	+.04	--
3	2981.495	33530.43		$197_{1/2}-5328_{1/2}$	+.06	--
4	2984.504	33496.62		$194_{5/2}-5296_{3/2}$	+.03	--
7	2984.750	33493.86	(.156) 1.594h†	$194_{5/2}-5295_{3/2}$	+.16	--
7d	2986.050	33479.29	(.502)†	$224_{3/2}-5590_{3/2}$	+.11	--
20	2988.471	33452.16	(.190, .564, .929, **1.294**) .292, .643, 1.012, **1.377**, 1.742, 2.108.	$142_{7/2}-4766_{7/2}$	+.01	--
4	2988.918	33447.16		$204_{3/2}-5392_{1/2}$	−.01	--
150R	2992.363	33408.65	(.223, .671, **1.120**) .830, 1.277, **1.727**, 2.174, 2.621.	$0_{5/2}-3340_{5/2}$	−.08	--
8	2993.176	33399.58		$194_{5/2}-5285_{7/2}$	+.03	--
20	2995.395	33374.84	(0w) 1.065B	$305_{11/2}-6393_{13/2}$	−.01	--
2	2996.074	33367.27		$197_{1/2}-5312_{3/2}$	−.01	5
3	2996.533	33362.16		$115_{5/2}-4494_{7\,2}$	.00	--
9	2997.686	33349.34	(000) 1.149	$146_{5/2}-4797_{5/2}$	−.02	--
4	2997.902	33346.93	(.365) 1.093w†?	$138_{3/2}-4718_{1/2}$	+.1	--
5	2997.980	33346.07		$138_{3/2}-4717_{3/2}$	+.1	--
5	2998.550	33339.73	(.677)	$164_{3/2}-4966_{3/2}$	+.09	--
200R	2999.599	33328.06	(**.072**, .219, .366, .513), **.731**, .882, 1.032, 1.182, 1.332, 1.482.	$117_{9/2}-4508_{11/2}$	−.05	--
4	3000.581	33317.16		$115_{5/2}-4490_{7/2}$	−.03	--
20r	3001.137	33310.99	(**.081**, .243, .406) 1.368, 1.533, **1.698**.	$146_{5/2}-4793_{7/2}$	+.10	--
3	3002.633	33294.40		$221_{9/2}-5545_{7/2}$	−.04	--
20	3004.136	33277.73	(.170) 1.190A	$146_{5/2}-4789_{5/2}$	−.03	--
9	3004.342	33275.45	(**.289**, .892) **000**, .590, 1.173.	$138_{3/2}-4710_{5/2}$	−.03	--
				$163_{11/2}-4958_{9/2}$	−.01	--
4	3005.232	33265.60		$266_{5/2}-5992_{7/2}$	+.12	--
10	3005.975	33257.38		$157_{5/2}-4903_{7/2}$	−.05	--
20	3006.425	33252.40	(.467), .967, 1.142, **1.318**, 1.504, 1.693†.	$157_{5/2}-4902_{5/2}$	+.05	--
7	3007.04	33245.6	(**.180**, .543)	$164_{3/2}-4957_{5/2}$	.0	--
4	3007.19	33243.9	(000) 1.192	$166_{9/2}-4986_{7/2}$	.0	--
4	3011.48	33196.6		$197_{1/2}-5296_{3/2}$	.0	--
20	3011.92	33191.7	(**.318**, .967, 1.619).	$117_{9/2}-4494_{7/2}$	+.01	--
15	3013.141	33178.29	(.105, **.310**) 1.174, **1.383**, 1.588.	$138_{3/2}-4700_{3/2}$	+.07	--
6	3014.939	33158.51	(**.105**, .326)	$146_{5/2}-4777_{3/2}$	+.06	--
40	3016.015	33146.67	(0w) 2.635B	$117_{9/2}-4490_{7/2}$	+.04	--
20	3016.480	33141.56	(.218, .636, 1.059, **1.483**) .506, .932. **1.355**, 1.784, 2.213, 2.639.	$142_{7/2}-4735_{7/2}$	+.06	--
6	3016.972	33136.16		$115_{5/2}-4472_{3/2}$	+.03	--
5	3017.891	33126.07		$150_{7/2}-4818_{7/2}$	+ 06	--
2	3018.150	33123.23		$266_{5/2}-5978_{7/2}$	−.01	--
15	3021.881	33082.33	(**.149**, .444) **.701**, .999, 1.299, 1.598.	$146_{5/2}-4770_{3/2}$	+.01	--
15	3022.989	33070.21	(**.101**, .307, .514, .720).	$173_{7/2}-5040_{9/2}$	+.02	--
5	3023.573	33063.81		$221_{9/2}-5522_{11/2}$	.00	--
9	3025.058	33047.59	(000) 1.109†?	$217_{7/2}-5482_{5/2}$	−.03	--
				$146_{5/2}-4766_{7/2}$	+.04	--
1	3027.128	33024.99		$172_{1/2}-5026_{3/2}$	+.07	--
2	3027.958	33015.94		$157_{5/2}-4878_{7/2}$	+.01	--
2	3028.099	33014.40		$194_{5/2}-5247_{5/2}$	−.02	--
30	3030.446	32988.84	(**.231**, .697, 1.165, 1.631) **−.562**, −.086, 388, 869, 1.335, 1.807.	$142_{7/2}-4720_{9/2}$	−.03	--
6	3031.266	32979.90	(.343) 1.200A†?	$173_{7/2}-5031_{7/2}$	+.02	--
2	3031.358	32978.90	(000) 1.195	$163_{11/2}-4928_{11/2}$	−.02	--
9	3032.792	32963.32	(.538) A	$166_{9/2}-4958_{9/2}$	−.01	--
20h	3034.552	32944.20		$2044_{7/2}-5339_{7/2}$	.0	--
8	3035.622	32932.58	(**.085**, .256, .427).	$247_{7/2}-5765_{9/2}$	−.05	--
9	3036.552	32922.50	(.218, **.659**) 1.033, **1.447**, 1.935.	$164_{3/2}-4925_{3/2}$	−.01	--
1	3037.222	32915.24		$194_{5/2}-5237_{7/2}$	+.01	--
4	3037.463	32912.63		$150_{7/2}-4797_{5/2}$	.00	--
15	3037.960	32907.25	(.189, **.568**) 1.292, **1.672**, 2.054.	$138_{3/2}-4673_{3/2}$	−.01	--
20	3040.033	32884.80	(**.338**, 1.017, 1.697) **1.226**, 1.905, 2.584.	$142_{7/2}-4710_{5/2}$	+.05	--
10	3041.000	32874.35	(.550) A	$150_{7/2}-4793_{7/2}$	−.01	--
7	3041.760	32866.14		$173_{7/2}-5019_{9/2}$	+.02	--
6	3041.993	32863.62		$163_{11/2}-4917_{9/2}$	+.01	+
10	3044.084	32841.04	(0w) 1.020 C	$150_{7/2}-4789_{5/2}$	+.01	--
3	3045.286	32828.08		$173_{7/2}-5015_{5/2}$	+.03	--
1	3045.732	32823.28		$138_{3/2}-4664_{5/2}$	−.02	--
5	3046.000	32820.39		$194_{5/2}-5227_{3/2}$	.00	--
30	3047.252	32806.91	(.246) 1.180 A † ?.	$280_{5/2}-6083_{5/2}$	+.13	--
8	3049.802	32779.48	(**.239**, .720, 1.200).	$173_{7/2}-5011_{5/2}$	+.02	--
4	3051.590	32760.27	(.372) A	$194_{5/2}-5221_{5/2}$	+.05	--
3	3052.799	32747.29		$244_{5/2}-5717_{7/2}$	−.01	--
				$231_{5/2}-5590_{3/2}$	+.09	--
3	3052.884	32746.38		$231_{5/2}-5589_{7/2}$	−.01	--
10	3053.629	32738.40	(.362) A	$217_{7/2}-5451_{7/2}$	−.04	--
3	3053.766	32736.93		$146_{5/2}-4735_{7/2}$	+.03	--
9	3054.899	32724.79		$115_{5/2}-4430_{5/2}$	+.02	--
2	3056.136	32711.54		$197_{1/2}-5246_{1/2}$	.00	--
10	3057.660	32695.24	(**.110**, .329, .548) **1.174**, 1.393 †.	$164_{3/2}-4902_{5/2}$	−.02	--
6	3057.852	32693.18	(000) 1.174	$298_{5/2}-6249_{7/2}$	+.05	--
20	3058.780	32683.27	(0w) 1.288 C	$138_{3/2}-4650_{5/2}$	−.01	--
9	3060.319	32666.83		$166_{9/2}-4928_{11/2}$	+.04	--
4	3061.218	32657.24	(.270)	$172_{1/2}-4989_{3/2}$	−.03	--
9	3061.608	32653.08	(.130) 1.184 h †	$221_{9/2}-5481_{9/2}$	.00	--
3	3062.500	32643.57		$271_{7/2}-5978_{7/2}$	+.03	--
				$204_{3/2}-5312_{3/2}$	+.11	--
3	3063.383	32634.15		$217_{7/2}-5440_{5/2}$	−.06	--
1	3064.499	32622.27	(1.063) 1.446 h	$306_{9/2}-6326_{11/2}$	−.03	--
7	3064.597	32621.23		$172_{1/2}-4985_{1/2}$	.00	--
5	3065.279	32613.97	(.502)	$151_{1/2}-4777_{3/2}$	−.05	--
5	3065.576	32610.81		$150_{7/2}-4766_{7/2}$	−.01	--
200r	3067.398	32591.44	(**.093**, .280) 1.866, 2.044, **2.231**.	$0_{5/2}-3259_{3/2}$	−.19	--
60r	3069.942	32564.44	(**.150**, .446) .836, 1.134, 1.432, 1.726.	$115_{5/2}-4414_{3/2}$	−.05	--
2	3070.679	32556.62		$247_{7/2}-5728_{9/2}$	−.02	--
20	3071.164	32551.47	(.166) 1.149 h	$166_{9/2}-4917_{9/2}$	−.01	--
3	3072.452	32537.83		$151_{1/2}-4770_{3/2}$	−.06	--
20	3072.965	32532.40	(.284) 1.227 A	$173_{7/2}-4986_{7/2}$	.00	--
3	3074.102	32520.37		$197_{1/2}-5227_{3/2}$	.00	--
8H	3075.02	32510.7		$266_{5/2}-5917_{5/2}$	+.3	--
10	3076.142	32498.80	(.428) 1.936	$151_{1/2}-4765_{1/2}$	−.05	--
5	3076.304	32497.09		$194_{5/2}-5195_{7/2}$	−.04	--
3	3076.716	32492.74		$217_{7/2}-5426_{5/2}$	−.04	--
5	3077.908	32480.16		$146_{5/2}-4710_{5/2}$	+.01	--
15	3078.864	32470.08		$117_{9/2}-4422_{9/2}$	+.02	--
1	3079.263	32465.86		$266_{5/2}-5912_{3/2}$	−.01	--
7	3080.922	32448.39		$247_{7/2}-5717_{7/2}$	−.09	--
2	3081.656	32440.66		$244_{5/2}-5686_{3/2}$	.00	--
50	3082.426	32432.56	(**.121**, .362, .603) 1.026, 1.266, 1.505, 1.745, 1.994, **2.224.**	$142_{7/2}-4664_{5/2}$	.00	--
3	3082.772	32428.92		$172_{1/2}-4966_{3/2}$	−.03	--
15	3084.210	32413.79	(0w) 1.146 W	$157_{5/2}-4818_{7/2}$	+.01	--
4	3085.344	32401.88		$217_{7/2}-5417_{7/2}$	+.03	--
3	3085.528	32399.95		$224_{3/2}-5482_{5/2}$	−.24	--
3	3086.03	32394.6		$221_{9/2}-5455_{11/2}$	.0	--
10	3087.154	32382.88		$146_{5/2}-4700_{3/2}$	.00	--
30r	3088.762	32366.03		$247_{7/2}-5709_{7/2}$	−.04	--
			(.243) 1.336 A	$115_{5/2}-4394_{5/2}$	+.01	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
10	3089. 932	32353. 77	(000) 1.157	$221_{9/2}-5451_{7/2}$	−. 03	--
20	3093. 636	32315. 04	(.384) 1.099, **1.869.**	$138_{3/2}-4614_{1/2}$	+. 05	--
4	3093. 994	32311. 30		$217_{7/2}-5408_{7/2}$	+. 03	--
10	3095. 060	32300. 16	(000) 1.152	$150_{7/2}-4735_{7/2}$	−. 01	--
20	3095. 788	32292. 57		$142_{7/2}-4650_{5/2}$	+. 03	--
7	3096. 414	32286. 04		$138_{3/2}-4611_{5/2}$	−. 08	--
4	3097. 922	32270. 33		$275_{9/2}-5978_{7/2}$ $263_{13/2}-5861_{11/2}$	−. 03 −. 03	-- --
2	3098. 674	32262. 50		$163_{11/2}-4856_{11/2}$	+. 02	--
(1H)	3099. 69	32251. 9		$173_{7/2}-4958_{9/2}$	+. 1	13
3	3099. 765	32251. 14		$272_{9/2}-5941_{11/2}$	+. 03	--
40R	3100. 672	32241. 71	(**.136**, .407, .677, .948, 1.219) **.047**, .317, .589, .862, 1.133, 1.404, 1.676, 1.936.	$117_{9/2}-4399_{11/2}$	−. 07	--
7	3100. 998	32238. 32		$166_{9/2}-4885_{7/2}$	. 00	--
3	3101. 700	32231. 03		$115_{5/2}-4381_{7/2}$	−. 02	--
2	3103. 709	32210. 16		$173_{7/2}-4954_{5/2}$	+. 02	--
10	3104. 647	32200. 43		$157_{5/2}-4797_{5/2}$	+. 03	--
2	3105. 660	32189. 93		$194_{5/2}-5164_{7/2}$	. 00	--
5	3107. 864	32167. 10		$166_{9/2}-4878_{7/2}$	+. 03	--
100R	3108. 808	32157. 33	(**.142**, .378, .613, .849) **.468**, .715, .972, 1.218, 1.461, 1.707, 1.953 †.	$142_{7/2}-4637_{9/2}$	−. 06	--
4	3109. 478	32150. 41		$273_{11/2}-5939_{9/2}$	. 00	--
8	3109. 756	32147. 53		$150_{7/2}-4720_{9/2}$	−. 01	--
40r	3110. 860	32136. 13	(.447, .611, **1.049**) .526, .821, 1.116, **1.413**, 1.710, 2.002, 2.301†.	$142_{7/2}\ \ 4635_{7/2}$	. 00	--
2	3111. 236	32132. 24		$194_{5/2}-5159_{5/2}$	+. 05	--
9	3111. 564	32128. 85	(.256) A	$157_{5/2}-4789_{5/2}$	+. 05	--
2	3112. 404	32120. 18		$194_{5/2}-5157_{3/2}$	+. 02	--
1	3112. 594	32118. 22		$115_{5/2}-4370_{3/2}$	−. 02	--
7	3113. 205	32111. 92	(**.352**, 1.057)	$146_{5/2}-4673_{3/2}$	. 00	--
40	3118. 192	32060. 57	(0w) 2.195 B	$117_{9/2}-4381_{7/2}$	+. 08	--
4	3119. 192	32050. 28		$138_{3/2}-4587_{3/2}$	+. 06	--
2	3119. 744	32044. 61		$224_{3/2}-5446_{3/2}$	+. 04	--
3	3119. 854	32043. 48		$150_{7/2}-4710_{5/2}$	+. 06	--
30	3121. 360	32028. 03	(.478) A	$146_{5/2}-4664_{5/2}$	+. 07	--
3	3122. 206	32019. 35		$194_{5/2}-5147_{5/2}$	+. 09	--
1h	3122. 411	32017. 25		$221_{9/2}-5417_{7/2}$	+. 04	--
9	3123. 161	32009. 55	(0w) 1.271	$157_{5/2}-4777_{3/2}$	+. 06	--
3	3123. 413	32006. 97		$151_{1/2}-4718_{1/2}$	. 0	--
1	3124. 956	31991. 17		$138_{3/2}-4581_{1/2}$	+. 03	--
2	3125. 288	31987. 77		$204_{3/2}-5246_{1/2}$	+. 05	--
1	3125. 384	31986. 79		$224_{3/2}-5440_{3/2}$	+. 01	--
10	3125. 518	31985. 42	(.337, **.559**) .932, **1.157**, 1.383.	$115_{5/2}-4356_{5/2}$	+. 02	12
3	3128. 353	31956. 43		$239_{11/2}-5591_{9/2}$	+. 01	--
40	3128. 944	31950. 40	(0w) 1.700B†?	$166_{9/2}-4856_{11/2}$	+. 05	--
1	3130. 608	31933. 42		$157_{5/2}-4770_{3/2}$	+. 06	--
3	3131. 270	31926. 66		$221_{9/2}-5408_{7/2}$	+. 03	--
2	3132. 013	31919. 09		$261_{3/2}-5805_{3/2}$	+. 08	--
10	3134. 022	31898. 63	(0w) .883C	$157_{5/2}-4766_{7/2}$	+. 04	--
2	3134. 344	31895. 23		$142_{7/2}-4611_{5/2}$	−. 02	--
10	3135. 068	31887. 98		$146_{5/2}-4650_{5/2}$	+. 04	--
3	3138. 026	31857. 93		$221_{9/2}-5401_{7/2}$	−. 22	--
5	3139. 263	31845. 37		$224_{3/2}-5426_{5/2}$	+. 02	--
10	3139. 792	31840. 01		$173_{7/2}-4917_{9/2}$	+. 07	--
9	3139. 945	31838. 46	(.545) .741	$151_{1/2}-4700_{3/2}$	+. 01	--
4	3141. 254	31825. 20		$115_{5/2}-4341_{5/2}$	+. 05	--
10	3141. 381	31823. 91	(000) 1.522B	$115_{5/2}-4340_{7/2}$	. 00	--
3	3141. 718	31820. 50		$239_{11/2}-5577_{13/2}$	−. 01	--
1	3144. 86	31788. 7		$221_{9/2}-5394_{11/2}$	. 0	--
4	3145. 616	31781. 07		$266_{5/2}-5844_{3/2}$	−. 01	--
10	3146. 536	31771. 78	(0w) .935 D	$194_{5/2}-5122_{7/2}$	+. 03	--
3	3147. 911	31757. 89		$115_{5/2}-4334_{3/2}$	. 00	--
4	3150. 047	31736. 36		$204_{3/2}-5221_{5/2}$	−. 02	--
6	3150. 529	31731. 51		$146_{5/2}-4635_{7/2}$	−. 02	--
10	3151. 162	31725. 13		$194_{5/2}-5118_{3/2}$	+. 02	--
40	3151. 636	31720. 36	(.610, **.890**) .603, .887, 1.167, **1.420**, 1.701, 1.994†?	$142_{7/2}-4593_{7/2}$	+. 04	--
40r	3153. 79	31698. 7	(.253, .462, .672, **.881**) .660, .856, **1.051**, 1.247, 1.441†?	$117_{9/2}-4345_{9/2}$	−. 1	--
2	3156. 552	31670. 96		$266_{5/2}-5833_{5/2}$	−. 03	--
4	3156. 827	31668. 20		$231_{5/2}-5482_{5/2}$	−. 01	--
50	3158. 306	31653. 38		$117_{9/2}-4340_{7/2}$	+. 03	--
6	3159. 312	31643. 29	(**.275** . . .)	$164_{3/2}-4797_{5/2}$	−. 02	--
2	3162. 208	31614. 32		$217_{7/2}-5338_{5/2}$	−. 01	--
4	3163. 243	31603. 97		$217_{7/2}-5337_{9/2}$	+. 02	--
10	3164. 520	31591. 22	(**.084**, .270, .453) **.708**, .888, 1.068, 1.248.	$150_{7/2}-4664_{5/2}$	−. 01	--
7	3164. 864	31587. 79		$157_{5/2}-4735_{7/2}$	−. 15	--
7	3165. 802	31578. 43	(0w) 1.278w	$221_{9/2}-5373_{7/2}$	+. 01	--
7	3166. 476	31571. 71		$164_{3/2}-4789_{5/2}$	. 00	--
7	3166. 904	31567. 45		$151_{1/2}-4673_{3/2}$	−. 04	--
10	3167. 155	31564. 93		$166_{9/2}-4818_{7/2}$	+. 01	--
5	3167. 594	31560. 56	(.544) A	$217_{7/2}-5333_{7/2}$	+. 02	--
50	3168. 374	31552. 79	(.248) 1.259A	$163_{11/2}-4785_{11/2}$	+. 01	--
2	3169. 097	31545. 60		$217_{7/2}-5332_{9/2}$	+. 05	--
10	3170. 992	31526. 75	(000) 1.246w †?	$173_{7/2}-4885_{7/2}$	−. 03	--
9	3173. 094	31505. 86	(**.198**, .597) **.495**, .890, 1.289, 1.690.	$138_{3/2}-4533_{5/2}$	−. 05	--
20	3174. 610	31490. 82	(.369, **.639**) .743, 1.014, **1.284**, 1.552, 1.810 †?	$146_{5/2}-4611_{5/2}$	+. 04	--
20	3174. 776	31489. 18	(.0w) 1.430h	$270_{13/2}-5861_{11/2}$	. 00	--
2	3176. 084	31476. 20		$194_{5/2}-5093_{5/2}$	−. 09	--
30r	3177. 714	31460. 06	(.085, .256, **.425**) 1.029, 1.196, **1.362**, 1.529, 1.696.	$115_{5/2}-4304_{5/2}$	. 00	--
2	3177. 934	31457. 88		$272_{9/2}-5861_{11/2}$	−. 09	--
2	3178. 176	31455. 49		$173_{7/2}-4878_{7/2}$	−. 04	--
6	3178. 488	31452. 40	(.495)	$164_{3/2}-4777_{3/2}$	. 00	--
15	3178. 612	31451. 17	(**.111**, .334, .556) **.593**, .817. . .	$150_{7/2}-4650_{5/2}$	−. 04	--
3h	3181. 258	31425. 01		$197_{1/2}-5118_{3/2}$	−. 08	--
1	3181. 792	31419. 74		$224_{3/2}-5384_{3/2}$	+. 04	--
7	3182. 664	31411. 13	(.623)	$194_{5/2}-5086_{7/2}$	+. 02	10
100R	3182. 869	31409. 11	(**.466**, .925) **.632**, 1.110, 1.588†?	$1895_{5/2}-5035_{7/2}$	. 0	--
200R	3184. 760	31390. 46		$1895_{5/2}-5034_{5/2}$	. 0	--
250R	3185. 574	31382. 44		$1895_{5/2}-5033_{3/2}$	−. 1	--
1	3186. 198	31376. 29		$164_{3/2}-4770_{3/2}$	+. 02	--
10	3186. 292	31375. 37	(0w) 1.155	$273_{11/2}-5861_{11/2}$	−. 07	--
3	3187. 956	31358. 99		$231_{5/2}-5451_{7/2}$	−. 04	--
20	3190. 170	31337. 23	(.104) 1.819	$164_{3/2}-4765_{1/2}$	. 00	--
20	3190. 782	31331. 22	(.211, .634, **1.057**) .263, .684, **1.105**, 1.526, 1.948.	$157_{5/2}-4710_{5/2}$	+. 03	--
20	3192. 362	31315. 71	(**.083**, .249) 1.668.	$146_{5/2}-4593_{7/2}$	−. 01	--
(3)	3192. 608	31313. 30		$166_{9/2}-4793_{7/2}$	+. 03	7
4	3192. 682	31312. 57		$231_{5/2}-5446_{3/2}$	−. 02	--
10	3193. 199	31307. 50	(000) 1.165	$221_{9/2}-5346_{11/2}$ $311_{5/2}-6249_{7/2}$	−. 03 +. 07	-- 16
1	3193. 979	31299. 86		$278_{3/2}-5912_{3/2}$	+. 21	--
30	3194. 497	31294. 79	(.385) 1.212A	$150_{7/2}-4635_{7/2}$	−. 01	--
3	3195. 666	31283. 33		$217_{7/2}-5305_{5/2}$	−. 01	--
3	3197. 248	31267. 86	(.537, 692, .846) A†?	$239_{11/2}-5522_{11/2}$	+. 01	--
15	3198. 578	31254. 86		$146_{5/2}-4587_{3/2}$ $231_{5/2}-5440_{5/2}$	−. 02 +. 06	-- --
8	3199. 486	31245. 98		$142_{7/2}-4546_{7/2}$	+. 01	--
20	3200. 035	31240. 62	(0w) 1.185C	$166_{9/2}-4785_{11/2}$	−. 03	--
10	3200. 725	31233. 89	(000) 1.344	$157_{5/2}-4700_{3/2}$	−. 03	--
6	3202. 224	31219. 27		$221_{9/2}-5337_{9/2}$	−. 04	--
100	3204. 245	31199. 58	(0w) 1.292B	$163_{11/2}-4750_{13/2}$	−. 06	--
15	3205. 420	31188. 15	(0w) .959D	$247_{7/2}-5591_{9/2}$	−. 05	--
9	3208. 222.	. 31160. 90	(.237, .400, .563, **.727**).	$221_{9/2}-5332_{9/2}$	−. 01	--
1	3208. 582	31157. 41		$273'_{1/2}-5854_{1/2}$	−. 07	--
1	3208. 662	31156. 63		$273''_{1/2}-5854_{1/2}$	−. 05	--
2	3210. 564	31138. 17		$271_{7/2}-5827_{9/2}$	−. 01	--
20	3211. 752	31126. 66	(**.221**, .650, 1.083) **000**, .436, .870, 1.302.	$142_{7/2}-4534_{9/2}$	−. 05	--
15	3212. 938	31115. 17	(**.242**, .713, 1.171, 1.637).	$142_{7/2}-4533_{5/2}$	. 00	--
2	3213. 152	31113. 10		$194_{5/2}-5057_{3/2}$	−. 03	--
3	3213. 646	31108. 32		$204_{3/2}-5159_{5/2}$	−. 03	--
3	3213. 890	31105. 95		$217_{7/2}-5288_{5/2}$	+. 01	--
9	3214. 110	31103. 82	(0w) 1.099	$263_{13/2}-5745_{13/2}$	−. 05	--
2	3214. 646	31098. 63		$272_{9/2}-5826_{7/2}$	−. 05	--
4	3214. 818	31096. 97		$280_{5/2}-5912_{3/2}$	−. 01	--
2	3219. 712	31049. 70		$166_{9/2}-4766_{7/2}$	−. 03	--
2	3220. 466	31042. 44		$263_{13/2}-5739_{11/2}$	−. 04	--
2	3221. 194	31035. 42		$273_{11/2}-5827_{9/2}$	−. 01	--
2	3221. 860	31029. 01		$244_{5/2}-5545_{7/2}$	−. 07	--
1	3222. 549	31022. 37		$231_{5/2}-5417_{7/2}$	−. 07	--
2	3224. 260	31005. 91		$194_{5/2}-5046_{5/2}$	. 00	--
8	3227. 45	30975 3	(.807) 1.541	$151_{1/2}-4614_{1/2}$	+. 1	--
8	3227. 48	30975. 0		$288_{7/2}-5978_{7/2}$	+. 2	--
6	3228. 329	30966. 83		$224_{3/2}-5338_{5/2}$	−. 07	--
3	3228. 428	30965. 88		$217_{7/2}-5274_{9/2}$	−. 02	--
15	3228. 734	30962. 95	(**.271**, .808) **.483**, 1.027, 1.571, 2.119	$157_{5/2}-4673_{3/2}$	−. 01	--
2	3230. 954	30941. 67		$261_{3/2}-5707_{1/2}$	−. 07	--
1	3231. 454	30936. 88		$298_{5/2}-6073_{5/2}$	−. 02	--
1	3231. 983	30931. 82		$231_{5/2}-5408_{7/2}$	−. 04	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	3235.944	30893.96	(.077, **.239**) 1.235, **1.407**, 1.571	$138_{3/2}-4472_{3/2}$	−.01	--
10	3237.513	30878.99	(000) 1.325 (.216, .368, **.520**)	$157_{5/2}-4664_{5/2}$ $150_{7/2}-4593_{7/2}$	−.01 .00	-- --
4	3238.363	30870.88	----	$224_{3/2}-5329_{3/2}$	−.01	--
2	3238.938	30865.40	----	$224_{3/2}-5328_{1/2}$	−.05	--
4	3239.156	30863.33	(000) 1.1922h	$231_{5/2}-5401_{7/2}$	−.05	--
1	3239.807	30857.13	----	$239_{11/2}-5481_{9/2}$	+.01	--
4	3240.331	30852.14	----	$285_{7/2}-5939_{9/2}$	−.02	--
1	3241.023	30845.55	----	$164_{3/2}-4718_{1/2}$	+.2	--
1	3241.112	30844.71	----	$164_{3/2}-4717_{3/2}$	+.1	--
10	3241.466	30841.34	(**.077**, .232, .382) 1.371, 1.526, **1.681**	$146_{5/2}-4546_{7/2}$	−.03	--
2	3242.174	30834.60	----	$217_{7/2}-5261_{7/2}$	−.01	--
10	3248.547	30774.11	(**.408**, 1.221)	$164_{3/2}-4710_{5/2}$	+.01	--
2	3251.548	30745.71	----	$275_{9/2}-5826_{7/2}$	−.01	--
20	3252.259	30738.99	---- (.137) 1.343	$166_{9/2}-4735_{7/2}$ $157_{5/2}-4650_{5/2}$	−.09 +.01	-- --
2	3252.736	30734.48	----	$261_{3/2}-5686_{3/2}$	−.01	--
10	3253.186	30730.23	----	$247_{7/2}-5545_{7/2}$	−.03	--
2	3254.886	30714.24	----	$278_{3/2}-5854_{1/2}$	+.01	--
3	3255.292	30710.41	----	$146_{5/2}-4533_{5/2}$ $151_{1/2}-4587_{3/2}$ $266_{5/2}-5737_{7/2}$	−.16 −.04 +.09	-- -- --
8	3256.286	30700.98	----	$194_{5/2}-5015_{5/2}$	.00	--
2	3256.666	30697.39	----	$221_{9/2}-5285_{7/2}$	−.01	--
7	3258.055	30684.30	----	$142_{7/2}-4490_{7/2}$	+.01	--
40r	3258.848	30676.84	(.218, **.651,**) 1.074, **1,501,** 1.928.	$164_{3/2}-4700_{3/2}$	+.01	--
50r	3259.550	30670.23	(**.149**, .450), **.828**, 1.127, 1.426, 1.726.	$115_{5/2}-4225_{3/2}$	.00	--
1	3260.052	30665.51	----	$273_{1/2}-5805_{3/2}$	+.13	--
20	3261.559	30651.35	(0w) 2.276	$151_{1/2}-4581_{1/2}$	−.02	--
10	3262.768	30639.98	(0w) 1.453B	$173_{7/2}-4797_{5/2}$	−.02	--
1	3263.877	30629.57	----	$285_{7/2}-5917_{5/2}$	−.03	--
15	3266.851	30601.69	(.154) 1.247A	$173_{7/2}-4793_{7/2}$	−.04	--
15	3268.077	30590.21	----	$138_{3/2}-4441_{1/2}$	.00	--
10	3268.480	30586.44	(.305) 1.154A	$166_{9/2}-4720_{9/2}$	−.01	--
1	3268.782	30583.62	----	$231_{5/2}-5373_{7/2}$	−.03	--
15	3268.894	30582.57	----	$157_{5/2}-4635_{7/2}$	.00	--
15	3269.033	30581.27	----	$221_{9/2}-5274_{9/2}$	+.01	--
(1)	3270.42	30568.3	----	$173_{7/2}-4789_{5/2}$	−.1	13
2	3272.780	30546.26	----	$2044_{7/2}-5099_{9/2}$	−.1	--
4	3273.282	30541.57	----	$172_{1/2}-4777_{3/2}$	−.04	--
1	3274.354	30531.57	----	$224_{3/2}-5296_{3/2}$	−.06	--
3	3274.658	30528.73	----	$224_{3/2}-5295_{3/2}$	−.03	--
8	3276.060	30515.67	----	$271_{7/2}-5765_{9/2}$	−.05	--
4	3276.544	30511.17	----	$266_{5/2}-5717_{7/2}$	−.10	--
4	3277.18	30505.2	----	$197_{1/2}-5026_{3/2}$	−.1	--
20	3277.710	30500.31	----	$146_{5/2}-4512_{3/2}$	−.04	--
2	3281.457	30465.48	----	$172_{1/2}-4770_{3/2}$	.00	--
4	3282.863	30452.44	----	$204_{3/2}-5093_{5/2}$	−.01	--
4	3283.124	30450.02	----	$221_{9/2}-5261_{7/2}$	+.05	--
5	3283.907	30442.76	----	$217_{7/2}-5221_{5/2}$	+.05	--
3	3284.454	30437.69	----	$194_{5/2}-4989_{3/2}$	+.01	--
8	3285.638	30426.71	(.513) 2.039	$172_{1/2}-4765_{1/2}$	+.27	--
10	3287.127	30412.94	(000) 1.150B	$273_{11/2}-5765_{9/2}$	−.03	--
3	3287.92	30405.6	----	$164_{3/2}-4673_{3/2}$	−.3	--
6	3290.093	30385.52	----	$117_{9/2}-4214_{9/2}$	−.02	--
3	3292.088	30367.11	----	$319_{7/2}-6235_{7/2}$	−.03	--
2	3292.65	30361.9	----	$288_{7/2}-5917_{5/2}$	.0	--
10	3294.834	30341.80	(.229) 1.353A	$157_{5/2}-4611_{5/2}$	−.02	--
15	3296.696	30324.67	----	$146_{5/2}-4494_{7/2}$	+.01	--
10	3296.992	30321.94	----	$164_{3/2}-4664_{5/2}$	+.03	--
2	3299.143	30302.17	----	$280_{5/2}-5833_{5/2}$	+.07	--
10	3300.972	30285.39	----	$150_{7/2}-4534_{9/2}$	+.01	--
15	3301.595	30279.66	(000) 1.502B	$146_{5/2}-4490_{7/2}$	−.03	--
10	3302.230	30273.84	----	$150_{7/2}-4533_{5/2}$	.00	--
6	3303.595	30261.34	----	$270_{13/2}-5739_{11/2}$	+.04	--
15	3303.754	30259.88	(000) 1.033C	$115_{5/2}-4184_{7/2}$	−.01	--
3	3306.484	30234.90	----	$231_{5/2}-5338_{5/2}$	−.02	--
10	3307.007	30230.12	(**.064**, .192, .320, .447, .575).	$272_{9/2}-5739_{11/2}$	+.03	--
1	3307.454	30226.03	----	$217_{7/2}-5200_{9/2}$	+.06	--
8	3308.872	30213.08	----	$221_{9/2}-5237_{7/2}$	.00	--
1	3309.164	30210.41	----	$272_{9/2}-5737_{7/2}$	+.01	--
7	3309.324	30208.95	----	$273_{11/2}-5745_{13/2}$	.00	--
1	3309.795	30204.65	----	$266_{5/2}-5686_{3/2}$	+.02	--
9	3312.288	30181.92	(**.166**, .498) **.875**, 1.210. 1.545.	$164_{3/2}-4650_{3/2}$	+.03	--
2	3313.105	30174.47	----	$263_{13/2}-5652_{13/2}$	+.02	--
15	3313.948	30166.80	(000) 1.274	$157_{5/2}-4593_{7/2}$	+.04	--
2h	3314.52	30161.6	----	$266_{5/2}-5682_{5/2}$	+.3	--
6	3316.062	31047.57	----	$273_{11/2}-5739_{11/2}$	+.01	--
1	3316.612	30142.58	----	$275_{9/2}-5765_{9/2}$	+.04	--
5	3317.013	30138.92	----	$231_{5/2}-5329_{3/2}$	+.01	--
2	3317.152	30137.66	----	$197_{1/2}-4989_{3/2}$	.00	--
10	3318.671	30123.87	----	$138_{3/2}-4394_{5/2}$	+.01	--
1h	3319.146	30119.56	----	$272_{9/2}-5728_{9/2}$	+.05	--
1	3319.622	30115.24	----	$194_{5/2}-4957_{5/2}$	+.02	--
2	3320.647	30105.95	----	$157_{5/2}-4587_{3/2}$	+.03	--
1	3321.124	30101.62	----	$197_{1/2}-4985_{1/2}$	.00	--
6	3321.450	30098.66	---- (**.089**, **.265**)	$247_{7/2}-5482_{5/2}$ $146_{5/2}-4472_{3/2}$	−.14 +.03	-- --
9	3322.196	30091.91	----	$142_{7/2}-4430_{5/2}$	+.04	--
50	3322.478	30089.35	(**.167**, .500, .832, 1.164) .707, 1.041, 1.376, 1.712, 2.048, 2.389, **2.729.**† ----	$117_{9/2}-4184_{7/2}$ $204_{3/2}-5057_{3/2}$	+.02 +.06	-- 22
10	3324.930	30067.17	----	$163_{11/2}-4637_{9/2}$	+.10	--
5	3326.896	30049.40	----	$224_{3/2}-5247_{5/2}$	−.08	--
5	3327.204	30046.62	(.276) .521	$224_{3/2}-5246_{1/2}$	.00	--
9	3327.712	30042.03	----	$244_{5/2}-5446_{3/2}$	+.03	--
4	3328.172	30037.88	----	$266_{5/2}-5669_{7/2}$	−.10	--
3	3328.874	30031.55	----	$271_{7/2}-5717_{7/2}$	−.02	--
2	3329.319	30027.53	----	$173_{7/2}-4735_{7/2}$	−.01	--
2	3330.116	30020.34	----	$280_{5/2}-5805_{3/2}$	+.08	--
15	3331.520	30007.69	(**.157**, .471, .786, 1.100) **.156**, .472, .789, 1.105, 1.408.	$142_{7/2}-4422_{9/2}$	−.03	--
20	3335.364	29973.11	(**.188**, .565) **.699**, 1.081, 1.466, 1.853†.	$115_{5/2}-4155_{3/2}$	−.01	--
2	3337.250	29956.17	----	$151_{1/2}-4512_{3/2}$	+.25	--
300R	3338.178	29947.84	(**.104**, .323, .548, .772) **.920**, 1.135†.	$2044_{7/2}-5039_{9/2}$	−.1	--
15	3339.685	29934.33	(.155) 2.361	$172_{1/2}-4718_{1/2}$	−.3	--
3	3340.304	29928.78	----	$272_{9/2}-5709_{7/2}$	−.16	--
250R	3342.245	29911.40	(.376) 1.877h†	$2044_{7/2}-5035_{7/2}$	.0	--
1	3343.092	29903.83	----	$231_{5/2}-5305_{5/2}$	−.10	--
100	3344.322	29892.82	(.156, .484) 1.572†.	$2044_{7/2}-5034_{5/2}$	.0	10, 18
40	3346.199	29876.06	(.239, **.722**) 1.252, **1.727,** 2.199.	$138_{3/2}-4370_{3/2}$	−.02	--
4	3346.606	29872.43	----	$217_{7/2}-5164_{7/2}$	+.01	--
2	3348.292	29857.38	----	$275_{9/2}-5737_{7/2}$	−.06	--
1	3348.508	29855.46	----	$224_{3/2}-5227_{3/2}$	+.01	--
8	3349.916	29842.91	----	$150_{7/2}-4490_{7/2}$ $244_{5/2}-5426_{5/2}$	−.05 +.13	-- --
4	3350.094	29841.33	----	$221_{9/2}-5200_{9/2}$	.00	--
20	3353.208	29813.61	(.497) 1.203, **2.200.**	$164_{3/2}-4614_{1/2}$	+.01	--
30	3355.288	29795.14	----	$224_{3/2}-5221_{5/2}$ $221_{9/2}-5195_{7/2}$	−.14 +.16	-- --
4	3355.626	29792.14	----	$194_{5/2}-4925_{3/2}$	+.01	--
10	3355.903	29789.68	----	$247_{7/2}-5451_{7/2}$	+.06	--
10	3356.328	29785.90	----	$221_{9/2}-5194_{11/2}$	.00	--
9	3356.462	29784.71	(**.149**, .452)	$164_{3/2}-4611_{5/2}$	−.02	--
4	3356.821	29781.52	----	$204_{3/2}-5026_{3/2}$	+.03	--
10	3358.021	29770.88	(**.180**, .539, .897) 1.077, 1.437, 1.796, **2.159.**	$173_{7/2}-4710_{5/2}$	+.09	--
6	3358.56	29766.1	----	$172_{1/2}-4700_{3/2}$	+.1	--
10h	3359.22	29760.2	----	$2363_{9/2}-5339_{7/2}$	.0	--
10	3359.818	29754.97	----	$166_{9/2}-4637_{9/2}$	.00	--
4	3360.177	29751.78	----	$244_{5/2}-5417_{7/2}$	−.07	--
10	3361.145	29743.21	(000) 1.524	$138_{3/2}-4356_{5/2}$	−.03	--
3	3361.828	29737.17	----	$285_{7/2}-5827_{9/2}$	−.01	--
2	3362.284	29733.14	----	$142_{7/2}-4394_{5/2}$	+.02	--
15	3362.745	29729.07	(000) 1.280	$115_{5/2}-4131_{5/2}$	+.01	--
6	3363.025	29726.59	----	$231_{5/2}-5288_{5/2}$	+.06	--
9	3365.732	29702.68	----	$231_{5/2}-5285_{7/2}$	+.05	--
8	3366.180	29698.73	----	$117_{9/2}-4145_{9/2}$	+.07	--
2	3366.418	29696.63	----	$278_{5/2}-5752_{5/2}$	−.03	--
3	3366.892	29692.45	----	$157_{5/2}-4546_{7/2}$	+.04	--
1	3367.298	29688.87	----	$273'_{1/2}-5707_{1/2}$	−.04	--
1	3367.384	29688.11	----	$273''_{1/2}-5707_{1/2}$	.00	--
6	3367.482	29687.25	----	$146_{5/2}-4430_{5/2}$	−.02	--
5	3367.677	29685.53	(000) 1.023	$247_{7/2}-5440_{5/2}$	+.14	--
2h	3368.132	29681.51	----	$271_{7/2}-5682_{5/2}$	−.11	--
8	3368.605	29677.35	----	$204_{3/2}-5015_{5/2}$	+.21	--
2	3370.764	29658.34	----	$275_{9/2}-5717_{9/2}$	−.05	--
8	3377.619	29598.15	----	$142_{7/2}-4381_{7/2}$	.00	--
10	3377.743	29597.06	(.391) 1.251A	$163_{11/2}-4590_{11/2}$	−.04	--
20	3379.700	29579.93	----	$115_{5/2}-4116_{7/2}$	−.02	--
9	3381.424	29564.84	----	$194_{5/2}-4902_{5/2}$	−.04	--
5	3381.794	29561.61	----	$157_{5/2}-4533_{5/2}$	.00	--
3	3382.646	29554.17	----	$151_{1/2}-4472_{3/2}$	−.03	--
2	3383.259	29548.81	----	$164_{3/2}-4587_{3/2}$	−.02	--
1	3383.814	29543.96	----	$247_{7/2}-5426_{5/2}$	.00	--
30	3384.452	29538.39	----	$272_{9/2}-5669_{7/2}$	+.33	--
40	3385.757	29527.01	(**.214**, .644)	$146_{5/2}-4414_{3/2}$	+.02	--
2	3386.264	29522.59	----	$288_{7/2}-5833_{5/2}$	+.04	--
2	3387.053	29515.71	----	$138_{3/2}-4334_{3/2}$	−.02	--
20	3389.428	29495.03	(.333) **1.528,** 2.195.	$172_{1/2}-4673_{3/2}$	−.05	--
8	3389.767	29492.08	(.141) 1.407	$197_{1/2}-4925_{3/2}$	−.03	--
4	3390.032	29489.78	----	$164_{3/2}-4581_{1/2}$	+.03	--
30	3390.254	29487.85	(0w) 1.396w	$221_{9/2}-5164_{7/2}$	+.07	--
1	3390.970	29481.62	----	$273'_{1/2}-5686_{3/2}$	−.04	5
1	3391.052	29480.90	----	$273''_{1/2}-5686_{3/2}$	+.04	--
5h	3391.256	29479.13	----	$2888_{7/2}-5836_{9/2}$	−.1	--
8	3392.376	29469.40	(**.068**, .200, .332, .464).	$288_{7/2}-5827_{9/2}$	−.04	--
8	3394.122	29454.24	(.296) 1.223A†	$217_{7/2}-5122_{7/2}$	.00	--
1	3394.430	29451.57	----	$224_{3/2}-5187_{3/2}$	−.03	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
9	3397.210	29427.47	(.277) 1.076A	$263_{13/2}-5577_{13/2}$	−.08	--
5	3397.686	29423.35	(0w) D	$239_{11/2}-5337_{9/2}$	.00	--
3	3398.404	29417.13		$244_{5/2}-5384_{3/2}$	.00	--
8	3398.793	29413.77		$204_{3/2}-4989_{3/2}$	−.07	--
400R	3399.302	29409.36	(**.108**, .324, .539, .769) 1.218, 1.429, 1.641, 1.853, 2.066, **2.280.**	$117_{9/2}-4116_{7/2}$	−.03	--
1	3402.97	29377.6		$204_{3/2}-4985_{1/2}$	−.2	--
1	3404.438	29364.99		$239_{11/2}-5332_{9/2}$	+.04	--
80R	3404.724	29362.53	(**.127**, .384, .635) .826, 1.119, 1.400, 1.667, 1.933, **2.171.**	$115_{5/2}-4094_{7/2}$	−.04	--
				$247_{7/2}-5408_{7/2}$	+.08	--
60	3405.888	29352.49	(0w) 1.685B	$142_{7/2}-4356_{5/2}$	−.01	--
30	3408.673	29328.51	(.109, .344, .580) 1.034, **1.270**, 1.505, 1.730.	$146_{5/2}-4394_{5/2}$	−.01	--
				$194_{5/2}-4878_{7/2}$	+.05	--
15	3409.831	29318.55	(0w) 1.069C	$173_{7/2}-4664_{5/2}$	−.05	--
2	3409.960	29317.44		$231_{5/2}-5247_{5/2}$	−.06	--
5	3412.701	29293.89		$247_{7/2}-5401_{7/2}$	−.08	--
10	3413.744	29284.95	(000) 1.178	$166_{9/2}-4590_{11/2}$	−.02	--
2	3414.380	29279.49		$273_{11/2}-5652_{13/2}$	−.04	--
40	3417.767	29250.48	(0w) 1.018	$150_{7/2}-4430_{5/2}$	−.06	--
			(1.110) 1.265	$151_{1/2}-4441_{1/2}$	+.04	--
1	3418.330	29245.66		$278_{3/2}-5707_{1/2}$	.00	--
2	3418.933	29240.50		$266_{5/2}-5590_{3/2}$	−.08	--
5	3419.242	29237.85		$115_{5/2}-4082_{5/2}$	−.02	--
60r	3419.410	29236.42	(**.113**, .341, .568, .794) **.529**, .762, .994, 1.226, 1.456, 1.687.	$142_{7/2}-4345_{9/2}$	−.02	--
20	3420.754	29224.93	(.117) 1.158	$115_{5/2}-4080_{3/2}$	+.04	17
5	3421.582	29217.86	(000) 1.403	$138_{3/2}-4304_{5/2}$	−.04	--
1h	3422.923	29206.42		$2885_{5/2}-5806_{7/2}$	−.04	--
600R	3424.620	29191.94	(000) 1.522	$117_{9/2}-4094_{7/2}$	−.07	--
3	3425.412	29185.20		$275_{9/2}-5669_{7/2}$	+.10	--
40r	3426.189	29178.57	(**.062**, .186, .310) **.943**, 1.065, 1.186, 1.311, 1.437.	$173_{7/2}-4650_{5/2}$	−.01	--
2	3426.527	29175.69		$157_{5/2}-4494_{7/2}$	−.01	--
50	3427.61	29166.5	(000) 1.434 D†	$150_{7/2}-4422_{9/2}$	+.1	--
7	3428.513	29158.80	(**.125**, .378, .631).	$217_{7/2}-5093_{5/2}$	+.02	--
1	3430.44	29142.5		$280_{5/2}-5717_{7/2}$	+.1	--
1	3430.80	29139.4		$306_{9/2}-5978_{7/2}$	+.1	--
4	3431.818	29130.72		$157_{5/2}-4490_{7/2}$	−.01	--
5	3432.668	29123.51	(**.133**, .395)	$231_{5/2}-5227_{3/2}$	+.04	--
(3)	3433.728	29114.52		$285_{7/2}-5765_{9/2}$	−.20	3
3	3436.193	29093.63	(.310) 1.133hA	$217_{7/2}-5086_{7/2}$	+.03	--
50	3437.714	29080.76	(**.469**, 1.224) −**.077**, .740, 1.559, 2.379.	$146_{5/2}-4370_{3/2}$	+.02	--
4	3438.589	29073.35		$341_{9/2}-6326_{11/2}$	−.01	--
2	3439.027	29069.65		$221_{9/2}-5122_{7/2}$	+.05	--
1	3439.168	29068.46		$332_{5/2}-6235_{7/2}$	−.02	--
2h	3439.67	29064.2		$273_{11/2}-5630_{9/2}$	+.1	--
3	3439.776	29063.32		$231_{5/2}-5221_{5/2}$	+.02	--
2h	3440.173	29059.97		$280_{5/2}-5709_{7/2}$	.00	--
5	3440.843	29054.31	(.092)	$224_{3/2}-5147_{5/2}$	−.01	--
4	3442.13	29043.4		$173_{7/2}-4637_{9/2}$	.0	--
5h	3442.722	29038.45		$278_{3/2}-5686_{3/2}$	+.04	--
10	3442.967	29036.39	(**.058**, .169, .279, .390, .500).	$163_{11/2}-4534_{9/2}$	−.03	--
1	3446.743	29004.58		$164_{3/2}-4533_{5/2}$	+.06	--
1h	3447.801	28995.68		$301_{1/2}-5912_{3/2}$	−.05	--
15	3449.333	28982.81	(.397) 1.166, 1.965.	$151_{1/2}-4414_{3/2}$	+.25	--
15	3449.407	28982.18		$285_{7/2}-5752_{5/2}$	.00	--
400R	3451.880	28961.42	(**.191**, .578) **1.376**, 1.761, 2.143, 2.525.	$0_{5/2}-2896_{3/2}$	−.13	--
15	3453.280	28949.68		$157_{5/2}-4472_{3/2}$	+.01	--
50	3453.495	28947.88	(.178, .560, **.884**) 1.002, **1.349**, 1.695, 2.043†.	$146_{5/2}-4356_{5/2}$	−.02	--
1	3457.956	28910.54		$244_{5/2}-5333_{7/2}$	.00	--
15	3458.881	28902.80	(.903) 1.611	$172_{1/2}-4614_{1/2}$	−.01	--
1000R	3460.465	28889.57	(**.119**, .360, .594) **1.121**, 1.361, 1.599, 1.831, 2.068, 2.309.	$0_{5/2}-2888_{7/2}$	−.15	--
2	3463.053	28867.98		$221_{9/2}-5102_{9/2}$	+.06	--
7000R	3464.726	28854.04	(0w) 1.973A	$0_{5/2}-2885_{5/2}$	−.14	--
10	3465.988	28843.53		$166_{9/2}-4546_{7/2}$	−.02	--
1	3467.093	28834.34		$305_{11/2}-5939_{9/2}$	−.04	--
1h	3467.656	28829.66		$285_{7/2}-5737_{7/2}$	+.04	--
80	3467.960	28827.14	(**.071**, .212, .354) 1.886B.	$142_{7/2}-4304_{5/2}$	−.02	--
6	3471.923	28794.23		$164_{3/2}-4512_{3/2}$	−.07	--
(10h)	3471.994	28793.65		$275_{9/2}-5630_{9/2}$	−.01	3
8	3472.071	28793.01		$266_{5/2}-5545_{7/2}$	−.04	--
30	3472.723	28787.60		$146_{5/2}-4341_{5/2}$	−.05	--
7	3472.875	28786.34		$146_{5/2}-4340_{7/2}$	−.07	--
2	3473.000	28785.30		$239_{11/2}-5274_{9/2}$	.00	--
6	3473.467	28781.43		$173_{7/2}-4611_{5/2}$	+.01	--
10	3474.183	28775.50		$163_{11/2}-4508_{11/2}$	+.02	--
5	3474.700	28771.22		$271_{7/2}-5591_{9/2}$	−.07	--
5	3475.201	28767.07		$306_{9/2}-5941_{11/2}$	−.06	--
4	3476.031	28760.21		$224_{3/2}-5118_{3/2}$	+.04	--
				$271_{7/2}-5589_{7/2}$	+.14	--
30	3476.442	28756.81	(.099, .290, .486, **.682**) .666, .861, 1.056, **1.251**, 1.447, 1.641, 1.835.	$150_{7/2}-4381_{7/2}$	−.01	--
8	3477.143	28751.00	(.323) 1.063A	$272_{9/2}-5591_{9/2}$	−.07	--
3	3478.491	28739.86		$272_{9/2}-5589_{7/2}$	+.01	--
4	3478.629	28738.72		$285_{7/2}-5728_{9/2}$	−.01	--
30	3480.381	28724.26	(.158) 1.154A	$166_{9/2}-4534_{9/2}$	−.03	--
40	3480.852	28720.38	(**.089**, .267) .871, 1.051, 1.231, **1.418.**	$146_{5/2}-4334_{3/2}$	−.01	--
40	3482.233	28708.98	(0w) 1.208w	$221_{9/2}-5086_{7/2}$	+.02	--
2	3482.853	28703.87		$2896_{3/2}-5766_{3/2}$	−.01	--
5	3484.365	28691.42	(.261)	$261_{3/2}-5482_{5/2}$	−.03	--
5	3484.728	28688.43	(000) 1.138	$217_{7/2}-5046_{5/2}$	+.03	--
4	3487.521	28665.53		$247_{7/2}-5338_{5/2}$	+.02	--
4	3488.77	28655.2		$247_{7/2}-5337_{9/2}$	+.1	--
5	3489.850	28646.32		$270_{13/2}-5577_{13/2}$	−.05	--
10	3490.860	28638.04	(.577) .813	$172_{1/2}-4587_{3/2}$	.00	--
4	3491.433	28633.34		$244_{5/2}-5305_{5/2}$	.00	--
2	3491.772	28630.56		$285_{7/2}-5717_{7/2}$	−.01	--
2	3492.372	28625.64		$217_{7/2}-5040_{9/2}$	+.03	--
2	3492.545	28624.22		$278_{3/2}-5645_{1/2}$	.00	--
2	3494.06	28611.8		$247_{7/2}-5333_{7/2}$	+.1	--
10	3494.725	28606.36	(.140) 1.280hw	$173_{7/2}-4593_{7/2}$	.00	--
1	3495.415	28600.72		$304_{3/2}-5912_{3/2}$	+.02	--
9	3502.727	28541.02		$204_{3/2}-4902_{5/2}$	−.02	---
40	3503.056	28538.34	(.234) 1.266A	$157_{5/2}-4430_{5/2}$	+.03	--
4	3503.305	28536.31		$151_{1/2}-4370_{3/2}$	.00	--
5	3503.748	28532.70		$273_{11/2}-5577_{13/2}$	+.07	--
(2h)	3505.68	28517.0		$273''_{1/2}-5590_{3/2}$	+.2	7
3	3506.177	28512.93		$194_{5/2}-4797_{5/2}$	.00	--
10	3506.390	28511.20		$224_{3/2}-5093_{5/2}$	−.15	--
			(**.173**, .522)	$150_{7/2}-4356_{5/2}$	+.03	--
3	3507.334	28503.53		$221_{9/2}-5066_{11/2}$	+.06	--
1	3508.626	28493.03		$231_{5/2}-5164_{7/2}$	+.02	--
10	3510.889	28474.67		$194_{5/2}-4793_{7/2}$	+.01	--
4	3511.343	28470.99	(.117, .351)	$288_{7/2}-5728_{9/2}$	.00	--
20	3512.280	28463.38	(**.105**, .320, .534, . . .)	$166_{9/2}-4508_{11/2}$	+.03	--
5	3515.01	28441.2	(.418)†?	$194_{5/2}-4789_{5/2}$	−.1	--
5	3515.756	28435.25	(.421)	$231_{5/2}-5159_{5/2}$	−.02	--
5	3516.146	28432.09		$244_{5/2}-5285_{7/2}$	+.05	--
40	3516.646	28428.05	(.137) 1.522A	$138_{3/2}-4225_{3/2}$	−.02	--
60	3517.326	28422.55	(.146, .439, **.732**) .704, .997, **1.290**, 1.583, 1.874	$146_{5/2}-4304_{5/2}$	−.01	--
15	3520.723	28395.13		$150_{7/2}-4345_{9/2}$	+.02	--
1	3521.041	28392.57		$164_{3/2}-4472_{3/2}$	−.01	--
4	3521.746	28386.88		$275_{9/2}-5589_{7/2}$	−.01	--
6	3522.171	28383.46		$217_{7/2}-5015_{5/2}$	−.01	--
4	3522.528	28380.58		$263_{13/2}-5472_{13/2}$	+.02	--
3	3524.736	28362.80		$288_{7/2}-5717_{7/2}$	−.03	--
2	3526.21	28350.95		$150_{7/2}-4341_{5/2}$	+.03	--
3	3526.368	28349.68		$150_{7/2}-4340_{7/2}$	.00	--
2	3527.229	28342.76		$115_{5/2}-3992_{3/2}$	−.03	--
4	3528.214	28334.84		$217_{7/2}-5011_{5/2}$	−.04	--
15	3529.213	28326.83	(**.132**, .397, .663)	$166_{9/2}-4494_{7/2}$	−.01	--
4	3529.74	28322.6		$231_{5/2}-5147_{5/2}$	+.3	--
5	3529.81	28322.0		$194_{5/2}-4777_{3/2}$	.0	--
4	3530.893	28313.35		$271_{7/2}-5545_{7/2}$	.00	--
2H	3532.69	28299.0		$341_{9/2}-6249_{7/2}$	−.2	--
2	3533.412	28293.16		$272_{9/2}-5545_{7/2}$	+.03	--
20	3534.822	28281.88	(0w) .908C	$166_{9/2}-4490_{7/2}$	+.01	--
1	3535.30	28278.1		$261_{3/2}-5440_{5/2}$	+.1	--
5	3536.157	28271.20		$239_{11/2}-5222_{13/2}$	.00	--
50	3537.462	28260.77	(0w) 1.167B	$115_{5/2}-3984_{7/2}$	−.02	--
2	3538.784	28250.22		$298_{5/2}-5805_{3/2}$	+.02	--
20	3539.329	28245.86	(0w) 1.221C	$194_{5/2}-4770_{3/2}$	−.03	--
10	3539.944	28240.96		$221_{9/2}-5040_{9/2}$	−.01	--
5	3543.688	28211.12		$194_{5/2}-4766_{7/2}$	.00	--
4	3544.370	28205.69		$263_{13/2}-5455_{11/2}$	+.04	--
3	3547.024	28184.59		$244_{5/2}-5261_{7/2}$	−.02	--
8	3548.106	28175.99		$151_{1/2}-4334_{3/2}$	+.03	--
5	3549.319	28166.37		$239_{11/2}-5212_{13/2}$	+.02	--
50	3549.891	28161.83	(**.115**, .342, .569, .794, 1.030) **.282**, .508, .720, .928, 1.154	$117_{9/2}-3991_{11/2}$	−.04	--
2	3550.644	28155.86		$341_{9/2}-6235_{7/2}$	.00	5
40	3551.294	28150.70	(0w) 1.292C	$221_{9/2}-5031_{7/2}$	+.04	--
2	3553.078	28136.57		$261_{3/2}-5426_{5/2}$	−.04	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
3	3553. 50	28133. 2	----------	$247_{7/2}-5285_{7/2}$	.0	--
20	3553. 650	28132. 04	(137) 1.249A?--	$173_{7/2}-4546_{7/2}$	+.03	--
30	3558. 935	28090. 27	(**.161**, .477, .788, 1.104)	$117_{9/2}-3984_{7/2}$	+.04	--
1	3559. 239	28087. 86	----------	$217_{7/2}-4986_{7/2}$	+.04	--
6	3559. 407	28086. 54	----------	$115_{5/2}-3967_{5/2}$	−.02	--
10	3562. 454	28062. 52	----------	$272_{9/2}-5522_{11/2}$	+.02	--
20	3564. 732	28044. 59	(000) 1.403-----	$157_{5/2}-4381_{7/2}$	.00	--
5	3565. 195	28040. 94	----------	$224_{3/2}-5046_{5/2}$	−.03	--
1	3565. 706	28036. 93	----------	$221_{9/2}-5019_{9/2}$	+.03	--
4	3566. 816	28028. 20	----------	$231_{5/2}-5118_{3/2}$	+.01	--
1	3567. 600	28022. 04	----------	$197_{1/2}-4777_{3/2}$	+.04	--
30	3568. 234	28017. 06	(**.071**, .227, .382)	$247_{7/2}-5274_{9/2}$	−.02	--
2	3568. 780	28012. 78	----------	$288_{7/2}-5682_{5/2}$ $173_{7/2}-4534_{9/2}$	−.10 +.03	-- --
30	3570. 255	28001. 20	(**.087**, .259, .431) .997, 1.169, 1.338, 1.506, **1.675**	$173_{7/2}-4533_{5/2}$	−.01	--
2	3571. 052	27994. 95	----------	$313_{9/2}-5939_{9/2}$	−.04	--
8	3571. 694	27989. 92	----------	$239_{11/2}-5194_{11/2}$	+.01	--
2	3572. 213	27985. 86	----------	$150_{7/2}-4304_{5/2}$	+.03	--
8	3572. 804	27981. 23	----------	$164_{3/2}-4430_{5/2}$	+.01	--
2	3572. 961	27980. 00	----------	$273_{11/2}-5522_{11/2}$	+.01	--
3	3573. 730	27973. 98	----------	$306_{9/2}-5861_{11/2}$	−.01	--
1	3577. 09	27947. 7	----------	$244_{5/2}-5237_{7/2}$	.0	--
6	3577. 325	27945. 87	(.233)----------	$197_{1/2}-4770_{3/2}$	.00	--
1	3577. 923	27941. 20	----------	$311_{5/2}-5912_{3/2}$	−.02	--
2	3578. 054	27940. 17	----------	$275_{9/2}-5545_{7/2}$	.00	--
60	3579. 125	27931. 81	(**.322**, .973) **.330**, .990, 1.643	$157_{5/2}-4370_{3/2}$	+.03	--
50	3580. 970	27917. 42	(0w) 1.226-----	$163_{11/2}-4422_{9/2}$	−.01	--
80	3583. 02	27901. 5	(.303) 1.488A	$117_{9/2}-3965_{9/2}$	.0	--
7	3583. 146	27900. 47	(0w) **.609**, .825, 1.041	$194_{5/2}-4735_{7/2}$	.00	--
15	3585. 030	27885. 81	----------	$247_{7/2}-5261_{7/2}$	+.02	--
10d	3585. 329	27883. 48	(.927) **.252**, .565	$172_{1/2}-4512_{3/2}$	−.03	--
1	3586. 842	27871. 72	----------	$280_{5/2}-5590_{3/2}$	+.03	--
2	3589. 264	27852. 91	----------	$244_{5/2}-5227_{3/2}$	+.03	--
10	3590. 878	27840. 39	(.240) .532, **1.010**	$224_{3/2}-5026_{3/2}$	.00	19
1	3591. 86	27832. 7	----------	$314_{3/2}-5929_{3/2}$	−.1	--
10	3593. 388	27820. 95	----------	$164_{3/2}-4414_{3/2}$	+.01	--
15	3595. 164	27807. 20	(0w) 1.507C---	$217_{7/2}-4958_{9/2}$	−.01	--
2h	3595. 32	27806. 0	----------	$266_{5/2}-5446_{3/2}$ $304_{3/2}-5833_{5/2}$	.0 +.2	-- --
2	3595. 887	27801. 61	----------	$319_{7/2}-5978_{7/2}$	−.07	--
10	3596. 230	27798. 96	----------	$157_{5/2}-4356_{5/2}$	+.02	--
20	3596. 392	27797. 71	(**.106**, .315, .531) **.621**, .831, 1.041, 1.245	$217_{7/2}-4957_{5/2}$	.00	--
3	3597. 039	27792. 71	----------	$244_{5/2}-5221_{5/2}$	.00	--
15	3598. 767	27779. 36	(.313, **.517**) .877, 1.081, **1.286**, 1.490, 1.694.	$231_{5/2}-5093_{5/2}$	−.01	--
15	3604. 394	27736. 00	(**.326**, .978) 1.101, 1.752, **2.404.**	$224_{3/2}-5015_{5/2}$	−.04	--
2	3605. 971	27723. 87	----------	$298_{5/2}-5752_{5/2}$	−.06	--
4	3606. 558	27719. 35	----------	$305_{11/2}-5827_{9/2}$	−.05	--
10	3607. 232	27714. 18	(0w) 1.325-----	$231_{5/2}-5086_{7/2}$ $194_{5/2}-4717_{3/2}$	−.01 −.0	-- --
2	3607. 833	27709. 56	----------	$275_{9/2}-5522_{11/2}$	+.02	--
10	3608. 661	27703. 20	----------	$221_{9/2}-4986_{7/2}$	+.02	--
30	3610. 492	27689. 15	(0w) 1.234A---	$163_{11/2}-4399_{11/2}$	.00	--
2	3611. 437	27681. 91	----------	$271_{7/2}-5482_{5/2}$	+.02	--
(2H)	3613. 41	27666. 8	----------	$314_{3/2}-5912_{3/2}$	+.1	7
8	3615. 372	27651. 78	----------	$272_{9/2}-5481_{9/2}$	+.01	--
3	3616. 427	27643. 72	----------	$194_{5/2}-4710_{5/2}$	.00	--
80	3617. 085	27638. 68	(.777) 1.103, **1.315**, 1.526†.	$157_{5/2}-4341_{5/2}$	−.01	19
20	3617. 252	27637. 41	----------	$157_{5/2}-4340_{7/2}$	−.04	--
20	3617. 859	27632. 77	(**.209**, .621)-----	$146_{5/2}-4225_{3/2}$	+.04	--
1	3619. 203	27622. 51	----------	$164_{3/2}-4394_{5/2}$	+.04	--
2	3620. 145	27615. 33	----------	$173_{7/2}-4494_{7/2}$	+.03	--
2	3620. 230	27614. 68	----------	$306_{9/2}-5826_{7/2}$	−.02	--
30	3621. 460	27605. 29	(.328, 1.205) A--	$166_{9/2}-4422_{9/2}$	−.01	--
10	3622. 183	27599. 78	----------	$263_{13/2}-5394_{11/2}$	+.01	--
2	3622. 265	27599. 16	----------	$270_{13/2}-5472_{13/2}$	−.22	--
20	3625. 908	27571. 43	(**.167**, .509) 1.154, 1.489, **1.823**† ----------	$157_{5/2}-4334_{3/2}$ $298_{5/2}-5737_{7/2}$	−.00 +.06	-- --
8	3626. 053	27570. 33	(000) 1.242-----	$173_{7/2}-4490_{7/2}$	.00	--
20	3629. 200	27546. 42	(0w) 1.455B---	$194_{5/2}-4700_{3/2}$	−.03	--
2	3632. 154	27524. 02	----------	$304_{3/2}-5805_{3/2}$	+.04	--
4	3636. 772	27489. 07	(**.135**, .396)----	$204_{3/2}-4797_{5/2}$	−.02	--
40	3637. 064	27486. 86	(**.102**, .304) **.969**, 1.175, 1.379.	$148_{3/2}-4131_{5/2}$	−.04	--
10	3637. 228	27485. 62	----------	$273_{11/2}-5472_{13/2}$	−.02	--
15	3637. 732	27481. 82	(.601) .727-----	$172_{1/2}-4472_{3/2}$	+.03	--
60	3637. 848	27480. 94	(.171) 1.304A--	$115_{5/2}-3906_{5/2}$	−.02	--
2	3641. 202	27455. 63	----------	$332_{5/2}-6073_{5/2}$	.00	--
	A	*K*				
15	3642. 986	27442. 19	(**.068**, .201, .335).	$117_{9/2}-3919_{11/2}$	−.03	--
4	3643. 712	27436. 72	(.185) .948-----	$224_{3/2}-4985_{1/2}$	+.02	--
5	3645. 33	27424. 5	----------	$270_{13/2}-5455_{11/2}$	.0	--
8	3645. 590	27422. 58	----------	$221_{9/2}-4958_{9/2}$	+.01	--
5	3646. 636	27414. 72	(.617) 1.602----	$197_{1/2}-4718_{1/2}$	−.3	--
1	3646. 69	27414. 3	----------	$197_{1/2}-4717_{3/2}$	+.1	--
2	3649. 210	27395. 38	----------	$217_{7/2}-4917_{9/2}$	+.02	--
6	3649. 47	27393. 4	----------	$272_{9/2}-5455_{11/2}$	+.1	--
20	3651. 656	27377. 03	----------	$166_{9/2}-4399_{11/2}$	+.01	--
80	3651. 972	27374. 67	(.127, **.384**) 1.585, **1.835**, 2.093.	$164_{3/2}-4370_{3/2}$	−.02	--
2	3652. 29	27372. 3	----------	$298_{5/2}-5717_{7/2}$	.0	--
2	3652. 563	27370. 23	----------	$285_{7/2}-5591_{9/2}$	−.06	--
15	3653. 621	27362. 31	----------	$2363_{9/2}-5099_{9/2}$	−.02	--
4	3654. 366	27356. 73	----------	$266_{5/2}-5401_{7/2}$ $2363_{9/2}-5098_{7/2}$	−.03 +.08	-- --
8	3654. 935	27352. 47	(**.084**, .248, .410).	$272_{9/2}-5451_{7/2}$	−.02	--
20	3660. 515	27310. 77	(0w) 1.193†?--	$273_{11/2}-5455_{11/2}$	+.04	--
10	3662. 126	27298. 76	(.200) 1.171A--	$275_{9/2}-5481_{9/2}$	−.05	--
2	3665. 251	27275. 49	----------	$194_{5/2}-4673_{3/2}$	.00	--
2	3665. 522	27273. 47	----------	$157_{5/2}-4304_{5/2}$	−.13	--
3	3669. 159	27246. 44	----------	$197_{1/2}-4700_{3/2}$	+.01	--
8	3669. 436	27244. 38	(.748)----------	$224_{3/2}-4966_{3/2}$	−.04	--
40	3669. 778	27241. 84	(**.103**, .309) **1.190**, 1.396.	$164_{3/2}-4356_{5/2}$	−.01	--
7	3669. 993	27240. 25	----------	$117_{9/2}-3899_{9/2}$	+.04	--
10	3670. 358	27237. 54	----------	$239_{11/2}-5119_{9/2}$	+.05	--
50	3670. 528	27236. 28	(**.108**, .314, .521, .728) **.635**, .842, 1.049, 1.258.	$142_{7/2}-4145_{9/2}$	−.04	--
(1)	3671. 24	27231. 0	----------	$247_{7/2}-5195_{7/2}$	+.2	13
20	3672. 407	27222. 34	(0w) 1.314B--- ----------	$244_{5/2}-5164_{7/2}$ $146_{5/2}-4184_{7/2}$	−.08 −.05	-- --
15	3676. 000	27195. 73	(**.088**, .265, .443, .620) **.555**, .733.	$166_{9/2}-4381_{7/2}$	.00	--
4	3676. 570	27191. 52	(.053) 1.359h---	$194_{5/2}-4664_{5/2}$	−.01	--
2	3677. 722	27183. 00	----------	$204_{3/2}-4765_{1/2}$	−.01	--
6	3678. 392	27178. 05	----------	$172_{1/2}-4441_{1/2}$	+.02	--
10	3680. 206	27164. 65	(.117) 1.114A--	$244_{5/2}-5159_{5/2}$	−.03	--
8	3681. 284	27156. 70	(.360) .290-----	$261_{3/2}-5328_{1/2}$	−.01	--
2	3681. 407	27155. 79	----------	$231_{5/2}-5031_{7/2}$	−.10	--
4	3681. 834	27152. 64	----------	$244_{5/2}-5157_{3/2}$	−.01	--
5	3682. 155	27150. 28	----------	$224_{3/2}-4957_{5/2}$	.00	--
8	3682. 714	27146. 16	----------	$163_{11/2}-4345_{9/2}$	+.01	--
1	3685. 303	27127. 08	----------	$271_{7/2}-5426_{5/2}$	+.03	--
2	3685. 444	27126. 05	----------	$221_{9/2}-4928_{11/2}$	+.02	--
3	3686. 452	27118. 63	----------	$263_{13/2}-5346_{11/2}$	+.02	--
6	3688. 646	27102. 50	----------	$288_{7/2}-5591_{9/2}$	−.1	--
150	3689. 504	27096. 20	(**.147**, .439, .732) 1.144, 1.429, 1.715, **1.991.**	$142_{7/2}-4131_{5/2}$	+.04	12
(1)	3690. 16	27091. 4	----------	$288_{7/2}-5589_{7/2}$	+.1	13
1	3690. 547	27088. 54	----------	$151_{1/2}-4225_{3/2}$	+.24	--
20	3691. 385	27082. 39	----------	$273_{1/2}-5446_{3/2}$ $217_{7/2}-4885_{7/2}$	+.19 +.19	-- --
200	3691. 48	27081. 7	----------	$150_{7/2}-4214_{9/2}$ $164_{3/2}-4341_{5/2}$	−.2 +.1	-- --
10	3692. 115	27077. 03	----------	$266_{5/2}-5373_{7/2}$	.00	--
2	3692. 808	27071. 95	----------	$239_{11/2}-5102_{9/2}$	−.01	--
2	3693. 664	27065. 68	----------	$298_{5/2}-5686_{3/2}$	.00	--
3	3695. 600	27051. 50	----------	$194_{5/2}-4650_{5/2}$	−.01	--
2	3697. 124	27040. 35	----------	$275_{9/2}-5455_{11/2}$	+.05	--
20	3697. 710	27036. 07	----------	$271_{7/2}-5417_{7/2}$	−.05	--
2d	3700. 684	27014. 34	----------	$164_{3/2}-4334_{3/2}$	.00	--
4	3701. 184	27010. 69	(000) 1.188----	$221_{9/2}-4917_{9/2}$	−.03	--
5	3702. 098	27004. 02	(.370, **.613**)-----	$231_{5/2}-5015_{5/2}$	−.04	--
(2h)	3702. 74	26999. 4	----------	$275_{9/2}-5451_{7/2}$	−.1	7
100	3703. 243	26995. 67	(**.180**, .540) **.588**, .947, 1.306, 1.665.	$138_{3/2}-4082_{5/2}$	−.04	--
1	3703. 53	26993. 6	----------	$261_{3/2}-5312_{3/2}$	.0	--
10	3704. 842	26984. 02	----------	$138_{3/2}-4081_{3/2}$	−.03	--
20	3705. 02	26982. 8	----------	$138_{3/2}-4080_{1/2}$	+.1	--
8	3705. 686	26977. 88	----------	$173_{7/2}-4430_{5/2}$	−.03	--
6h	3708. 774	26955. 42	----------	$231_{5/2}-5011_{5/2}$	−.05	--
60	3709. 930	26947. 02	(.382, .629, **.875**) .698, .948, 1.198, **1.447**, 1.697, 1.947, 2.196.	$142_{7/2}-4116_{7/2}$	−.03	--
2	3710. 64	26941. 8	----------	$301_{1/2}-5707_{1/2}$	+.1	--
5	3711. 46	26935. 9	(.258)----------	$146_{5/2}-4155_{3/2}$	+.3	--
5h	3712. 920	26925. 32	----------	$272_{9/2}-5408_{7/2}$	.00	--
10	3713. 160	26923. 58	----------	$247_{7/2}-5164_{7/2}$	−.02	--
1	3714. 530	26913. 64	----------	$338_{7/2}-6073_{5/2}$	−.10	--
1	3714. 712	26912. 32	----------	$285_{7/2}-5545_{7/2}$	−.03	--
5	3714. 995	26910. 28	(.479) **1.088**, 2.040.	$172_{1/2}-4414_{3/2}$	+.13	--
100	3717. 285	26893. 70	(000) 1.257w---	$173_{7/2}-4422_{9,}$	−.06	--
20	3717. 44	26892. 6	----------	$305_{11/2}-5745_{13/2}$	−.2	--
2h	3720. 860	26867. 86	----------	$221_{9/2}-4903_{7/2}$	+.05	--
4	3721. 146	26865. 79	----------	$247_{7/2}-5159_{5/2}$	−.07	--
(3)	3722. 22	26858. 1	----------	$324_{5/2}-5929_{3/2}$	−.2	13

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
2000R	3725.760	26832.52	(**.073**, .218, .373, .413, .653) **.981** . . .	$2363_{9/2}-5047_{11/2}$	.00	--
8	3726.502	26827.18		$224_{3/2}-4925_{3/2}$	−.01	--
4	3726.68	26825.9		$151_{1/2}-4199_{1/2}$	+.2	--
7	3727.498	26820.01	(.056) .704	$261_{3/2}-5295_{3/2}$	−.01	--
1h	3729.684	26804.29		$244_{5/2}-5122_{7/2}$	+.05	--
20	3731.870	26788.60	(.118, **.557**) .809†.	$166_{9/2}-4340_{7/2}$	+.01	19
(5H)	3732.058	26787.25		$272_{9/2}-5394_{11/2}$	−.13	7
40	3732.278	26785.67	(.152w) 1.176A	$150_{7/2}-4184_{7/2}$	+.01	--
20	3735.01	26766.1		$117_{9/2}-3852_{7/2}$	−.1	--
1000	3735.314	26763.90	(.413) 1.712A	$2363_{9/2}-5039_{9/2}$	.00	--
4h	3736.193	26757.60		$244_{5/2}-5118_{3/2}$	.00	--
10	3736.838	26752.98		$247_{7/2}-5147_{5/2}$	+.05	--
1	3737.806	26746.05		$306_{9/2}-5739_{11/2}$	−.06	--
1	3738.538	26740.82		$231_{5/2}-4989_{3/2}$	+.06	--
200	3740.10	26729.7	(0w) 1.485C	$142_{7/2}-4094_{7/2}$	.0	19
30	3740.414	26727.41.		$2363_{9/2}-5035_{7/2}$	.00	--
2	3743.072	26708.43		$231_{5/2}-4986_{7/2}$	+.02	--
1	3743.194	26707.56		$239_{11/2}-5066_{11/2}$	+.05	--
2	3743.572	26704.86		$273_{11/2}-5394_{11/2}$	+.01	--
80	3745.436	26691.57	(000) 1.065, **1.206**, 1.341, 1.472.	$146_{5/2}-4131_{5/2}$	+.01	--
5	3750.666	26654.35		$194_{5/2}-4611_{5/2}$	.00	--
2	3752.718	26639.77		$278_{3/2}-5446_{3/2}$	+.02	--
1	3753.316	26635.53		$306_{9/2}-5728_{9/2}$	.00	--
2	3753.770	26632.31		$266_{5/2}-5329_{3/2}$	+.02	--
15	3755.624	26619.17	(**.063**, .188, .313) **.945**, 1.069, 1.194.	$173_{7/2}-4394_{5/2}$	+.01	--
15	3757.622	26605.01	(**.223**, .668)	$142_{7/2}-4082_{5/2}$	+.04	--
2	3759.749	26589.96		$314_{3/2}-5805_{3/2}$	.00	--
2	3765.878	26546.68		$304_{3/2}-5707_{1/2}$	−.03	--
15	3766.480	26542.44	(**.082**, .247, .413) 1.424, 1.576, **1.740.**	$146_{5/2}-4116_{7/2}$	−.01	--
5d	3769.297	26522.60	(.249)	$204_{3/2}-4700_{3/2}$	−.01	--
8	3770.738	26512.47		$231_{5/2}-4966_{3/2}$	+.03	--
2h	3771.252	26508.86		$244_{5/2}-5093_{5/2}$	+.08	--
2	3774.83	26483.8		$157_{5/2}-4225_{3/2}$	.0	--
3	3775.460	26479.31		$194_{5/2}-4593_{7/2}$	+.02	--
30	3777.69	26463.7	(.284) 1.241, **1.680†.**	$172_{1/2}-4370_{3/2}$	−.2	--
2	3778.535	26457.77		$273'_{1/2}-5384_{3/2}$ $273''_{1/2}-5384_{3/2}$	−.36 +.44	-- --
15	3780.357	26445.01		$239_{11/2}-5040_{9/2}$ $306_{9/2}-5709_{7/2}$	.00 +.05	-- --
2	3780.54	26443.8		$244_{5/2}-5086_{7/2}$	+.2	--
4	3781.864	26434.48		$275_{9/2}-5394_{11/2}$	+.06	--
15	3784.179	26418.30	 (.254, **.423**) 1.256.	$194_{5/2}-4587_{3/2}$ $231_{5/2}-4957_{5/2}$	−.15 .00	-- --
(6)	3785.40	26409.8		$221_{9/2}-4856_{11/2}$	+.2	13
2	3785.535	26408.84		$217_{7/2}-4818_{7/2}$	+.04	--
10	3787.192	26397.28		$266_{5/2}-5305_{5/2}$	−.03	--
150	3787.520	26395.00	(**.102**, .308, .514, .720) .638, .844, 1.050, 1.254, 1.459, 1.666, 1.872, **2.084.**	$150_{7/2}-4145_{9/2}$	+.01	--
4	3789.212	26383.21		$197_{1/2}-4614_{1/2}$	+.01	--
4	3789.771	26379.32		$280_{5/2}-5440_{5/2}$	+.03	--
3	3795.505	26339.47		$304_{3/2}-5686_{3/2}$	+.01	--
10	3795.800	26337.42	(0w) D	$270_{13/2}-5346_{11/2}$	−.01	--
50	3796.590	26331.94	(**.108**, .319)	$115_{5/2}-3791_{3/2}$	+.03	--
50	3797.586	26325.04	(**.192**, .574, .955) 2.103.	$146_{5/2}-4094_{7/2}$	−.03	--
3	3798.252	26320.42		$301_{1/2}-5645_{1/2}$	+.11	--
3	3801.742	26296.26		$319_{7/2}-5827_{9/2}$ $304_{3/2}-5682_{5/2}$	−.06 +.11	-- --
2	3802.21	26293.0		$266_{5/2}-5296_{3/2}$	.0	--
2	3804.527	26277.01		$319_{7/2}-5826_{7/2}$	−.03	--
5	3805.41	26270.9		$285_{7/2}-5481_{9/2}$	−.1	--
40	3807.742	26254.82	(**.064**, .192, .318) **.830**, .957, 1.084.	$150_{7/2}-4131_{5/2}$	−.01	--
10d	3808.200	26251.67		$204_{3/2}-4673_{3/2}$	+.02	--
2	3808.640	26248.64		$271_{7/2}-5338_{5/2}$	+.04	--
3	3809.752	26240.98		$239_{11/2}-5019_{9/2}$	+.04	--
20	3810.098	26238.59		$173_{7/2}-4356_{5/2}$	+.05	--
20	3812.259	26223.72	(.160) 1.192A	$273_{11/2}-5346_{11/2}$	+.03	--
7	3812.812	26219.92		$266_{5/2}-5288_{5/2}$	+.01	--
(1H)	3814.24	26210.1		$247_{7/2}-5093_{5/2}$	+.1	7
40	3815.655	26200.38	(0w) 1.107C	$146_{5/2}-4082_{5/2}$	+.01	19
2	3816.294	26195.99		$266_{5/2}-5285_{7/2}$	−.02	--
30	3817.539	26187.45	(**.183**, .549)	$146_{5/2}-4080_{3/2}$	+.06	--
5	3818.655	26179.79		$271_{7/2}-5332_{9/2}$	−.03	--
(8)	3820.45	26167.5		$204_{3/2}-4664_{5/2}$	−.2	13
3	3821.598	26159.64		$272_{9/2}-5332_{9/2}$	+.04	--
2h	3821.962	26157.15		$217_{7/2}-4793_{7/2}$	.00	--
3	3823.478	26146.77		$280_{5/2}-5417_{7/2}$ $261_{3/2}-5227_{3/2}$	−.16 +.06	-- --
10	3823.772	26144.76		$247_{7/2}-5086_{7/2}$	−.02	--
15	3827.04	26122.4		$173_{7/2}-4345_{9/2}$	−.1	--
9	3827.625	26118.45	(.201)	$197_{1/2}-4587_{3/2}$	+.02	--
50	3828.325	26113.67	(.149) 1.245A	$115_{5/2}-3769_{5/2}$	−.03	--
20	3829.80	26103.6	(.776) .196	$172_{1/2}-4334_{3/2}$	.0	--
10	3829.83	26103.4		$338_{7/2}-5992_{7/2}$	+.1	--
2	3830.098	26101.58		$298_{5/2}-5590_{3/2}$	−.05	--
3	3831.028	26095.25		$231_{5/2}-4925_{3/2}$	+.04	--
70	3833.702	26077.04	 (.343) 1.033, 1.183, **1.333**, 1.488, 1.652†?	$273_{11/2}-5332_{9/2}$ $173_{7/2}-4340_{7/2}$	−.03 −.01	-- --
100	3834.235	26073.42	(**.059**, .177, .296) **.894**, 1.024, 1.145, 1.264.	$157_{5/2}-4184_{7/2}$	−.01	--
70	3836.305	26059.35	(.607) 1.587	$197_{1/2}-4581_{1/2}$	.00	--
1h	3837.088	26054.03		$306_{9/2}-5669_{7/2}$	−.05	--
10	3841.498	26024.12	(0w) 1.123h	$221_{9/2}-4818_{7/2}$	−.04	--
60	3843.415	26011.15	(**.097**, .292 . . .)	$117_{9/2}-3776_{7/2}$	+.02	--
(3)	3844.35	26004.8		$194_{5/2}-4546_{7/2}$	−.1	13
7	3846.857	25987.87		$280_{5/2}-5401_{7/2}$	.00	--
15	3851.988	25953.26	(0w) 1.459B	$275_{9/2}-5346_{11/2}$	.00	--
5	3852.689	25948.53		$266_{5/2}-5261_{7/2}$	−.05	--
30	3855.936	25926.69	(.202) 1.512, 1.643.	$164_{3/2}-4225_{3/2}$	+.01	--
1	3858.584	25908.89		$273'_{1/2}-5329_{3/2}$ $273''_{1/2}-5329_{3/2}$	−.43 +.37	-- --
2	3859.328	25903.90		$273'_{1/2}-5328_{1/2}$	+.02	--
2	3859.450	25903.08		$273''_{1/2}-5328_{1/2}$	.00	--
9	3860.862	25893.60		$217_{7/2}-4766_{7/2}$	−.01	--
6	3861.647	25888.34		$150_{7/2}-4094_{7/2}$	.00	--
6	3862.103	25885.28		$244_{5/2}-5031_{7/2}$	−.02	--
5	3863.153	25878.25		$263_{13/2}-5222_{13/2}$	+.01	--
15	3863.768	25874.13		$194_{5/2}-4533_{5/2}$	−.01	--
4	3863.932	25873.04		$231_{5/2}-4903_{7/2}$	.00	--
4	3864.766	25867.45		$285_{7/2}-5440_{5/2}$	−.03	--
1	3865.126	25865.04		$275_{9/2}-5337_{9/2}$	.00	--
2h	3865.875	25860.03		$3340_{5/2}-5926_{5/2}$	−.03	--
2	3867.21	25851.1		$305_{11/2}-5641_{9/2}$	−.2	--
2	3868.213	25844.33		$138_{3/2}-3967_{5/2}$	−.07	--
100	3869.944	25832.84	(0w) 1.306C	$163_{11/2}-4214_{9/2}$	−.07	--
3	3873.037	25812.21		$280_{5/2}-5384_{3/2}$	.00	--
4	3873.870	25806.66		$275_{9/2}-5332_{9/2}$	+.02	--
100	3875.26	25797.4	(.436, **.723**) .852, **1.134**, 1.413.	$115_{5/2}-3738_{5/2}$	−.1	--
150	3876.861	25786.75	(**.171**, .512) **.797**, 1.139, 1.480.	$157_{5/2}-4155_{3/2}$	+.09	--
20	3878.868	25773.41		$313_{9/2}-5717_{7/2}$ $263_{13/2}-5212_{13/2}$	+.01 +.02	-- --
10	3879.016	25772.42		$221_{9/2}-4793_{7/2}$	−.09	--
2	3880.336	25763.66		$150_{7/2}-4082_{5/2}$	+.02	--
40	3881.89	25753.3		$1895_{5/2}-4470_{5/2}$	.0	--
5	3883.958	25739.63		$247_{7/2}-5046_{5/2}$	+.05	--
2h	3884.888	25733.47		$244_{5/2}-5015_{5/2}$	.00	--
40	3887.488	25716.26		$271_{7/2}-5285_{7/2}$	−.05	--
40	3887.950	25713.20	(.095, 285, **.476.**)	$173_{7/2}-4304_{5/2}$	.00	--
2	3889.36	25703.9		$288_{7/2}-5451_{7/2}$	−.1	--
40	3889.962	25699.91	(000) 1.123w	$221_{9/2}-4785_{11/2}$	+.02	--
1	3890.54	25696.1		$272_{9/2}-5285_{7/2}$	.0	--
5	3893.48	25676.7		$247_{7/2}-5040_{9/2}$	−.1	--
5	3893.914	25673.82		$319_{7/2}-5765_{9/2}$	−.04	--
4	3895.41	25664.0		$164_{3/2}-4199_{1/2}$ $194_{5/2}-4512_{3/2}$	−.1 +.1	-- --
30	3896.110	25659.35	(.366) 1.080, **1.811.**	$204_{3/2}-4614_{1/2}$	−.03	--
2	3898.41	25644.2		$151_{1/2}-4081_{1/2}$	−.1	--
2	3900.34	25631.5		$231_{5/2}-4878_{7/2}$	.0	--
3	3900.50	25630.4		$204_{3/2}-4611_{5/2}$	−.1	--
30	3900.907	25627.80	(.534, .883, **1.235**.)	$142_{7/2}-3984_{7/2}$	−.09	--
20	3901.092	25626.58		$239_{11/2}-4958_{9/2}$	−.03	--
5	3902.580	25616.81		$266_{5/2}-5227_{3/2}$	−.04	--
3	3902.82	25615.2		$324_{5/2}-5805_{3/2}$	−.2	--
10	3905.12	25600.1	(000) 1.190B	$271_{7/2}-5274_{9/2}$	−.1	--
(5)	3905.56	25597.3		$263_{13/2}-5194_{11/2}$	+.3	13
3	3907.20	25586.5		$247_{7/2}-5031_{7/2}$	.0	--
3	3907.74	25583.0		$217_{7/2}-4735_{7/2}$	.0	--
40	3908.210	25579.91	(.155, .257, .360, **.453**) 1.152.	$272_{9/2}-5274_{9/2}$	−.04	--
1	3909.84	25569.23		$273''_{1/2}-5296_{3/2}$	−.03	--
2	3910.157	25567.18		$273'_{1/2}-5295_{3/2}$	−.01	--
2	3910.272	25566.42		$273''_{1/2}-5295_{3/2}$	+.03	--
2	3911.76	25556.7		$266_{5/2}-5221_{5/2}$	.0	--
60	3913.924	25542.57	(.089) 1.291A	$157_{5/2}-4131_{5/2}$	−.03	--
200	3917.270	25520.75	(.141w) 1.142C	$166_{9/2}-4214_{9/2}$	−.03	--
10	3919.076	25508.99		$221_{9/2}-4766_{7/2}$	+.02	--
20	3920.85	25497.5	(0w) 1.189B	$273_{11/2}-5274_{9/2}$	+.1	--
10	3922.274	25488.19	(**.226**, .682) **.226**, .682.	$194_{5/2}-4494_{7/2}$	−.04	--
5	3923.58	25479.7		$115_{5/2}-3706_{3/2}$	.0	--
10	3924.090	25476.40	(.224)	$224_{3/2}-4789_{5/2}$	+.01	--
4	3924.67	25472.6		$247_{7/2}-5019_{9/2}$	−.1	--
2	3925.038	25470.24		$244_{5/2}-4989_{3/2}$	+.07	--
2	3925.63	25466.4		$278_{3/2}-5329_{3/2}$	+.3	--
10	3926.522	25460.62	(.238)	$278_{3/2}-5328_{1/2}$	−.01	--
4	3926.85	25458.5	(.188)	$261_{3/2}-5159_{5/2}$ $288_{7/2}-5426_{7/2}$	.0 +.2	-- --
30	3927.59	25453.7	(**.227**, .693)	$142_{7/2}-3967_{5/2}$	.0	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
2	3928.364	25448.68	---	$272_{9/2}$—$5261_{7/2}$	+.02	--
15	3928.704	25446.48	(.130, **.395**)	$261_{3/2}$—$5157_{3/2}$	.00	--
6	3929.198	25443.27	---	$194_{5/2}$—$4490_{7/2}$	+.01	--
200	3929.847	25439.07	(**.067**, .202, .338, .474) **.968**, 1.103, 1.239, 1.374.	$142_{7/2}$—$3965_{9/2}$	−.06	--
6	3930.53	25434.7	---	$247_{7/2}$—$5015_{5/2}$	.0	--
20	3931.201	25430.31	(0w) .972C	$217_{7/2}$—$4720_{9/2}$	−.02	--
2	3936.70	25394.8	---	$204_{3/2}$—$4587_{3/2}$	+.2	--
100	3936.899	25393.51	(000) 1.321	$157_{5/2}$—$4116_{7/2}$	+.02	--
2h	3937.628	25388.81	---	$319_{7/2}$—$5737_{7/2}$	+.05	--
6	3941.468	25364.07	(.156) **.520**, .828.	$197_{1/2}$—$4512_{3/2}$	+.17	--
(2)	3942.22	25359.2	---	$280_{5/2}$—$5338_{5/2}$	−.2	13
10	3942.562	25357.03	---	$224_{3/2}$—$4777_{3/2}$	−.05	--
15	3944.344	25345.58	---	$261_{3/2}$—$5147_{5/2}$	.00	--
50	3944.718	25343.17	(**.075**, .226)	$275_{9/2}$—$5285_{7/2}$	+.04	--
150	3945.906	25335.55	(.374) **1.068**, 1.815.	$204_{3/2}$—$4581_{1/2}$	+.02	--
2	3946.75	25330.1	---	$239_{11/2}$—$4928_{11/2}$	.0	--
15	3950.570	25305.64	(**.204**, .611) 1.377.	$280_{5/2}$—$5333_{7/2}$	+.02	--
10	3950.64	25305.2	---	$146_{5/2}$—$3992_{3/2}$	−.1	--
2	3951.45	25300.0	---	$313_{9/2}$—$5669_{7/2}$	−.1	--
2	3951.836	25297.53	---	$278_{3/2}$—$5312_{3/2}$	−.01	--
15	3954.428	25280.95	(1.017) .438, **1.104**, 1.767.	$224_{3/2}$—$4770_{3/2}$	.00	--
2	3956.60	25267.1	---	$306_{9/2}$—$5591_{9/2}$	.0	--
3	3957.173	25263.41	---	$280_{5/2}$—$5329_{3/2}$	+.01	--
10	3957.363	25262.20	(000) 1.385	$194_{5/2}$—$4472_{3/2}$	.00	--
7	3958.357	25255.86	---	$306_{9/2}$—$5589_{7/2}$	−.01	--
15	3960.552	25241.86	--- (.095)	$224_{3/2}$—$4765_{1/2}$ $244_{5/2}$—$4966_{3/2}$	−.07 +.01	-- --
150	3961.036	25238.77	(**.073**, .220) **1.120**, 1.267, 1.414, 1.562.	$138_{3/2}$—$3906_{5/2}$	−.03	--
300	3962.484	25229.55	(0w) 1.781W	$164_{3/2}$—$4155_{3/2}$	−.02	--
40	3963.267	25224.57	(0w) 1.099h	$166_{9/2}$—$4184_{7/2}$	.00	--
7	3963.707	25221.77	---	$3244_{1/2}$—$5766_{3/2}$	−.05	--
5	3964.279	25218.13	---	$341_{9/2}$—$5941_{11/2}$	−.06	--
2	3964.53	25216.5	---	$305_{11/2}$—$5577_{13/2}$	−.1	--
15	3964.810	25214.75	(**.070**, .209, .348, .487, .626) **.365** . . .	$239_{11/2}$—$4917_{9/2}$	−.01	--
1	3965.27	25211.8	---	$272_{9/2}$—$5237_{7/2}$	.0	--
30	3967.39	25198.4	(0w) .140w	$221_{9/2}$—$4735_{7/2}$	+.1	--
2	3967.707	25196.34	---	$285_{7/2}$—$5373_{7/2}$	+.01	--
(1h)	3970.93	25175.9	---	$157_{5/2}$—$4094_{7/2}$	−.2	7
3	3975.374	25147.75	---	$244_{5/2}$—$4957_{5/2}$	+.03	--
20	3975.648	25146.01	---	$163_{11/2}$—$4145_{9/2}$	−.02	--
4	3976.759	25138.99	---	$247_{7/2}$—$4986_{7/2}$	−.01	--
7	3982.286	25104.10	---	$1895_{5/2}$—$4405_{5/2}$	.0	--
10	3983.41	25097.0	---	$270_{13/2}$—$5222_{13/2}$	−.1	--
1	3985.31	25085.0	---	$273'_{1/2}$—$5246_{1/2}$	−.1	--
1	3985.42	25084.3	---	$273''_{1/2}$—$5246_{1/2}$	.0	--
5h	3987.086	25073.88	---	$3259_{3/2}$—$5766_{3/2}$	+.08	--
15	3990.660	25051.42	---	$261_{3/2}$—$5118_{3/2}$ $157_{5/2}$—$4082_{5/2}$	−.01 +.01	-- --
30	3991.033	25049.08	(.130) 1.012, 1.212.†	$146_{5/2}$—$3967_{5/2}$	+.02	11
10	3991.571	25045.70	---	$221_{9/2}$—$4720_{9/2}$	+.01	--
10	3992.72	25038.5	---	$157_{5/2}$—$4080_{3/2}$	+.1	--
4d	3994.154	25029.50	---	$231_{5/2}$—$4818_{7/2}$	+.11	--
3	3996.987	25011.77	---	$313_{9/2}$—$5641_{9/2}$	−.15	--
3	4000.122	24992.17	---	$270_{13/2}$—$5212_{13/2}$	−.02	--
3	4001.19	24985.5	---	$164_{3/2}$—$4131_{5/2}$	.0	--
70	4004.930	24962.16	(.174) 1.157, **1.503**.	$197_{1/2}$—$4472_{3/2}$	−.02	--
3	4010.322	24928.60	---	$266_{5/2}$—$5159_{5/2}$ $288_{7/2}$—$5373_{7/2}$	−.05 +.01	-- --
(35)	4011.514	24921.19	---	$280_{5/2}$—$5295_{3/2}$	−.08	3
15	4012.26	24916.6	---	$266_{5/2}$—$5157_{3/2}$	.0	--
20	4018.40	24878.5	(000) 1.160	$273_{11/2}$—$5212_{13/2}$	.0	--
6	4019.124	24874.01	---	$217_{7/2}$—$4664_{5/2}$	−.01	--
10	4022.86	24850.9	---	$280_{5/2}$—$5288_{5/2}$ $194_{5/2}$—$4430_{5/2}$	−.1 +.1	-- --
60	4022.965	24850.26	(**.176**, .525) **.553**, .907, 1.260.	$204_{3/2}$—$4533_{5/2}$	−.04	--
40	4023.313	24848.11	---	$142_{7/2}$—$3906_{5/2}$	+.05	--
3d	4025.07	24837.3	---	$301_{1/2}$—$5496_{1/2}$ $285_{7/2}$—$5337_{9/2}$	.0 +.1	-- --
9	4025.614	24833.91	---	$166_{9/2}$—$4145_{9/2}$	+.01	--
3	4026.707	24827.17	---	$280_{5/2}$—$5285_{7/2}$	+.05	--
4	4027.124	24824.60	(**.102**, .304)	$244_{5/2}$—$4925_{3/2}$	−.02	--
30	4028.53	24815.9	(0w) 1.168	$231_{5/2}$—$4797_{5/2}$ $270_{13/2}$—$5194_{11/2}$	−.1 +.1	22
60	4029.63	24809.2	(0w) 1.212B	$173_{7/2}$—$4214_{9/2}$ $306_{9/2}$—$5545_{7/2}$	.0 .0	-- --
8	4032.143	24793.70	---	$285_{7/2}$—$5333_{7/2}$ $272_{9/2}$—$5195_{7/2}$	−.11 +.03	-- --
100	4033.31	24786.5	(.208w) 1.152A	$150_{7/2}$—$3984_{7/2}$	−.1	--
10	4033.63	24784.6	---	$272_{9/2}$—$5194_{11/2}$	.0	--
1h	4034.74	24777.7	---	$142_{7/2}$—$3899_{9/2}$ $231_{5/2}$—$4793_{7/2}$	−.2 .0	-- --
50	4037.49	24760.9	(.813) **.073**, 1.559.	$151_{1/2}$—$3992_{3/2}$	.0	--
2h	4039.52	24748.4	---	$3452_{7/2}$—$5926_{5/2}$	−.1	--
	A	*K*				
10	4040.178	24744.39	(.080) 1.211h	$231_{5/2}$—$4789_{5/2}$	−.02	--
3	4041.305	24737.49	---	$324_{5/2}$—$5717_{7/2}$	−.07	--
3	4044.798	24716.12	---	$311_{5/2}$—$5590_{3/2}$	+.19	--
4	4045.237	24713.44	---	$298_{5/2}$—$5451_{7/2}$	−.02	--
2	4047.106	24702.03	---	$273_{11/2}$—$5194_{11/2}$	−.03	--
80	4048.99	24690.6	(**.106**, .322) **1.036**, 1.249, 1.462, 1.676.	$194_{5/2}$—$4414_{3/2}$	.0	--
10	4050.926	24678.74	(**.058**, .174) 1.073.	$224_{3/2}$—$4710_{5/2}$	−.04	--
3	4052.852	24667.01	---	$298_{5/2}$—$5446_{3/2}$	−.01	--
3	4053.36	24663.9	---	$305_{11/2}$—$5522_{11/2}$	.0	--
15	4054.265	24658.41	---	$197_{1/2}$—$4441_{1/2}$	−.01	--
20H	4055.330	24651.93	---	$3340_{5/2}$—$5806_{7/2}$	+.02	--
10	4057.001	24641.78	(.213) .668	$278_{3/2}$—$5246_{1/2}$	−.02	--
2	4059.753	24625.08	---	$231_{5/2}$—$4777_{3/2}$	−.02	--
3	4061.643	24613.62	---	$239_{11/2}$—$4856_{11/2}$	−.01	--
30	4061.856	24612.33	(0w) .1.241B	$150_{7/2}$—$3967_{5/2}$	.00	--
(4h)	4062.40	24609.0	---	$298_{5/2}$—$5440_{5/2}$	−.2	7
15h	4064.328	24597.36	---	$244_{5/2}$—$4902_{5/2}$	−.01	--
2	4066.94	24581.6	---	$224_{3/2}$—$4700_{3/2}$	+.1	--
2	4067.246	24579.71	---	$288_{7/2}$—$5338_{5/2}$ $280_{5/2}$—$5261_{7/2}$	−.15 +.02	-- --
1	4067.44	24578.5	---	$306_{9/2}$—$5522_{11/2}$	.0	--
10	4069.16	24568.2	---	$266_{5/2}$—$5122_{7/2}$	.0	--
1	4072.36	24548.9	---	$231_{5/2}$—$4770_{3/2}$	−.1	--
4	4073.060	24544.63	---	$166_{9/2}$—$4116_{7/2}$	.00	--
8	4078.120	24514.17	(000) 1.231	$231_{5/2}$—$4766_{7/2}$	−.03	--
10	4079.364	24506.70	(.160)	$271_{7/2}$—$5164_{7/2}$	+.01	--
80	4081.432	24494.29	(**.291**, .874) **.259**, .831, 1.413.	$164_{3/2}$—$4082_{5/2}$	−.03	--
2	4082.65	24487.0	---	$275_{9/2}$—$5200_{9/2}$	−.1	--
20	4083.365	24482.69	(.271) 1.970	$164_{3/2}$—$4081_{1/2}$	+.03	17
20	4083.584	24481.38	---	$164_{3/2}$—$4080_{3/2}$	+.04	17
4	4087.89	24455.6	---	$338_{7/2}$—$5827_{9/12}$	−.1	--
4	4088.10	24454.4	---	$2044_{7/2}$—$4491_{5/2}$	−.4	--
1	4088.69	24450.8	---	$278_{3/2}$—$5227_{3/2}$	+.2	5
5	4089.01	24448.9	---	$271_{7/2}$—$5159_{5/2}$	−.1	--
4	4089.407	24446.52	---	$247_{7/2}$—$4917_{9/2}$	−.02	--
30	4089.919	24443.46	(.442) **1.247**, 1.435.	$146_{5/2}$—$3906_{5/2}$	.00	--
2	4090.59	24439.4	---	$261_{3/2}$—$5057_{3/2}$	−.1	--
4	4091.12	24436.3	---	$338_{7/2}$—$5826_{7/2}$	.0	--
(5h)	4093.02	24424.9	---	$341_{9/2}$—$5861_{11/2}$	−.2	13
2h	4099.31	24387.4	---	$324_{5/2}$—$5682_{5/2}$	−.2	--
3h	4103.763	24361.00	---	$244_{5/2}$—$4878_{7/2}$	+.05	--
70	4104.422	24357.09	(000) 1.330	$194_{5/2}$—$4381_{7/2}$	−.03	--
10	4106.440	24345.12	(000) 1.188h	$271_{7/2}$—$5148_{9/2}$	−.04	--
5h	4106.829	24342.81	---	$280_{5/2}$—$5237_{7/2}$	+.01	--
2h	4107.431	24339.25	---	$333_{11/2}$—$5765_{9/2}$ $285_{7/2}$—$5288_{5/3}$	−.03 +.04	-- --
1	4107.832	24336.87	---	$217_{7/2}$—$4611_{5/2}$	+.03	--
3	4107.973	24336.03	---	$271_{7/2}$—$5147_{5/2}$	+.01	--
10	4108.618	24332.22	(**.241**, .744) 1.408, **1.884**.	$261_{3/2}$—$5046_{5/2}$	−.01	--
1	4109.451	24327.28	---	$166_{9/2}$—$4094_{7/2}$	+.03	--
100	4110.894	24318.74	(.435) **1.219**, 2.091.	$172_{1/2}$—$4155_{3/2}$	−.04	--
5	4111.598	24314.58	---	$263_{13/2}$—$5066_{11/2}$	+.03	--
3	4112.275	24310.58	---	$224_{3/2}$—$4673_{3/2}$	+.03	--
30	4113.402	24303.91	(.184, .545, .905, **1.266**) .684, 1.034, **1.383**, 1.727.	$142_{7/2}$—$3852_{7/2}$	+.03	--
3	4114.676	24296.39	(**.129**, .389)	$304_{3/2}$—$5482_{5/2}$	−.03	--
10 30	4121.548 4121.635	24255.88 24255.37	(0w) 2.010B	$2044_{7/2}$—$4470_{5/2}$	+.3 −.2	27
8	4122.738	24248.88	(**.132**, .399)	$288_{7/2}$—$5305_{5/2}$	+.01	--
2	4122.896	24247.95	---	$280_{5/2}$—$5227_{3/2}$	−.01	--
2	4123.507	24244.36	---	$194_{5/2}$—$4370_{3/2}$	+.05	--
2	4123.82	24242.5	---	$273_{11/2}$—$5148_{9/2}$	+.1	--
2	4128.002	24217.95	---	$298_{5/2}$—$5401_{7/2}$	+.14	--
8	4130.458	24203.56	(0w) 1.084	$231_{5/2}$—$4735_{7/2}$	+.01	--
10	4132.277	24192.90	(0w) 1.041C ---	$221_{9/2}$—$4635_{7/2}$ $273''_{1/2}$—$5157_{3/2}$	−.05 +.05	22 --
100	4133.425	24186.18	(**.061**, .183, .305, .426, .548, .669) **1.151**, . . . 2.049.	$163_{11/2}$—$4049_{13/2}$	−.01	--
200	4136.45	24168.5	(.464) 1.516A	$117_{9/2}$—$3592_{9/2}$	.0	--
20	4137.603	24161.76	(.235, 387, **.545**) 1.077, **1.223**, 1.383.	$217_{7/2}$—$4593_{7/2}$	−.02	--
3	4138.532	24156.34	---	$157_{5/2}$—$3992_{3/2}$	+.01	--
(1h)	4142.44	24133.6	---	$275_{9/2}$—$5164_{7/2}$	+.1	23
4	4142.767	24131.65	---	$261_{3/2}$—$5026_{3/2}$	.00	--
200	4144.363	24122.35	(**.061**, .183, .306, .428) 1.195, 1.319, 1.442, 1.566, 1.689, **1.811**.	$173_{7/2}$—$4145_{9/2}$	−.01	--
10	4146.233	24111.47	(.074, .223, **.370**).	$194_{5/2}$—$4356_{5/2}$	.00	--
50	4149.96	24089.8	(0w) 1.484A	$138_{3/2}$—$3791_{3/2}$	.0	--
10	4150.527	24086.53	---	$224_{3/2}$—$4650_{5/2}$	−.04	--
2	4150.790	24085.01	---	$341_{9/2}$—$5827_{9/2}$	−.03	--
10h	4152.29	24076.3	---	$3358_{3/2}$—$5766_{3/2}$	.0	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	4152.632	24074.32		$157_{5/2}-3984_{7/2}$	−.01	--
3	4157.252	24047.57		$288_{7/2}-5285_{7/2}$	.00	--
20	4159.925	24032.11	(0w) .746C	$272_{9/2}-5119_{9/2}$	−.03	19
5	4160.773	24027.22		$261_{3/2}-5015_{5/2}$	−.08	--
1	4164.32	24006.8		$150_{7/2}-3906_{5/2}$	+.1	--
10	4166.408	23994.72		$305_{11/2}-5455_{11/2}$	+.02	--
15	4168.588	23982.17	(0w) 1.220h	$173_{7/2}-4131_{5/2}$	−.03	--
100d	4170.395	23971.78	 (.569) **.915**, 2.051.	$275_{9/2}-5148_{9/2}$ $138_{3/2}-3779_{1/2}$	−.20 −.05	9
10	4173.978	23951.21		$194_{5/2}-4341_{5/2}$	−.01	--
10	4175.186	23944.27	(.495)	$197_{1/2}-4370_{3/2}$	−.02	--
10	4176.540	23936.51		$150_{7/2}-3899_{9/2}$	−.03	--
6	4176.867	23934.64		$204_{3/2}-4441_{1/2}$	+.04	--
2	4177.419	23931.48		$288_{7/2}-5274_{9/2}$	+.05	--
3	4178.599	23924.72		$280_{5/2}-5195_{7/2}$	+.02	--
3	4179.73	23918.2		$319_{7/2}-5589_{7/2}$	.0	--
2	4181.29	23909.3		$306_{9/2}-5455_{11/2}$	.0	--
(1)	4182.22	23904.0		$239_{11/2}-4785_{11/2}$	+.1	23
100	4182.902	23900.11	(.106, .316 **.522**) .795, 1.002, **1.212**, 1.410, 1.613.	$157_{5/2}-3967_{5/2}$	+.01	--
100	4183.056	23899.23	(0w) 1.304w	$146_{5/2}-3852_{7/2}$	−.05	--
2h	4184.48	23891.1		$332_{5/2}-5717_{7/2}$	.0	--
2h	4185.72	23884.0		$194_{5/2}-4334_{3/2}$	.0	--
5	4187.909	23871.53		$138_{3/2}-3769_{5/2}$	−.01	--
2	4188.441	23868.50		$306_{9/2}-5451_{7/2}$	−.01	--
3Hl	4191.92	23848.7		$3452_{7/2}-5836_{9/2}$	.0	--
50	4194.668	23833.07	(.132) 1.258A	$173_{7/2}-4116_{7/2}$	−.02	--
10	4195.741	23826.97	(**.108**, .323) **.885**, 1.100, 1.315.	$204_{3/2}-4430_{5/2}$	−.03	--
7	4203.308	23784.08		$273_{11/2}-5102_{9/2}$	.00	--
30	4204.525	23777.19	(w) 1.058B	$221_{9/2}-4593_{7/2}$	+.05	--
30	4213.266	23727.87	 (w) 1.293h	$261_{3/2}-4985_{1/2}$ $271_{7/2}-5086_{7/2}$	−.09 .00	9
2	4214.974	23718.25		$224_{3/2}-4614_{1/2}$	−.03	--
15	4215.500	23715.30		$275_{9/2}-5122_{7/2}$	−.03	--
200	4221.079	23683.95	(.277) 1.130, 1.238, **1.344**, 1.452, 1.560.	$115_{5/2}-3526_{5/2}$	−.03	--
2	4222.500	23675.98		$285_{7/2}-5221_{5/2}$	.00	--
15	4224.163	23666.66		$204_{3/2}-4414_{3/2}$	−.06	--
2000	4227.46	23648.2	(**.133**, .394, .657) **1.292**, 1.596, 1.855, 2.114, 2.372, 2.626.	$1895_{5/2}-4259_{7/2}$	.0	--
20	4232.956	23617.50	(**.054**, .162, .270).	$280_{5/2}-5164_{7/2}$	.00	--
10	4233.275	23615.72		$173_{7/2}-4094_{7/2}$	+.01	--
6	4234.43	23609.3		$163_{11/2}-3991_{11/2}$	+.1	--
10	4234.95	23606.4		$2044_{7/2}-4405_{5/2}$	.0	--
20	4236.237	23599.20	(1.448) .252, **1.227**.	$164_{3/2}-3992_{3/2}$	−.04	--
7	4238.016	23589.30	(.074)	$298_{5/2}-5338_{5/2}$	−.05	--
15	4238.586	23586.13	(.213)	$194_{5/2}-4304_{5/2}$	.00	--
2	4239.956	23578.51		$231_{5/2}-4673_{3/2}$	−.06	--
40	4241.16	23571.8	(?) .964	$172_{1/2}-4081_{1/2}$	−.1	17
50	4241.42	23570.4	(?) .766	$172_{1/2}-4080_{3/2}$	−.2	17
2	4241.806	23568.23		$217_{7/2}-4534_{9/2}$	+.06	--
2	4243.85	23556.8		$217_{7/2}-4533_{5/2}$	+.2	--
20	4244.12	23555.4	(.248)	$138_{3/2}-3738_{5/2}$	+.1	--
40hl	4246.820	23540.40	(.418)	$3452_{7/2}-5806_{7/2}$	+.01	--
4h	4247.679	23535.64		$261_{3/2}-4966_{3/2}$ $298_{5/2}-5333_{7/2}$	−.04 +.08	-- --
2	4248.357	23531.88		$306_{9/2}-5417_{7/2}$	−.04	--
2	4255.10	23494.6		$231_{5/2}-4664_{5/2}$	.0	--
2	4255.33	23493.3		$298_{5/2}-5329_{3/2}$	.0	--
20	4255.749	23491.01		$173_{7/2}-4082_{5/2}$	.00	--
200	4257.60	23480.8	(**.176**, .526, .875) 1.043, 1.393, 1.745, 2.096, **2.447**.	$142_{7/2}-3769_{5/2}$	.0	--
(1)	4258.88	23473.8		$244_{5/2}-4789_{5/2}$	.0	23
3	4259.880	23468.23		$204_{3/2}-4394_{5/2}$	−.02	--
6	4260.91	23462.6		$150_{7/2}-3852_{7/2}$ $341_{9/2}-5765_{9/2}$	.0 .0	-- --
3	4261.86	23457.3		$338_{7/2}-5728_{9/2}$	+.1	--
3	4263.35	23449.1		$266_{5/2}-5011_{5/2}$	+.2	--
3	4263.76	23446.9		$280_{5/2}-5147_{5/2}$	+.1	--
2h	4264.73	23441.5		$261_{3/2}-4957_{5/2}$	.0	--
5	4268.71	23419.7		$273_{11/2}-5066_{11/2}$	+.1	--
3	4269.79	23413.8		$313_{9/2}-5481_{9/2}$	.0	--
20	4269.94	23413.0		$285_{7/2}-5195_{7/2}$	+.1	--
10	4274.34	23388.9		$305_{11/2}-5394_{11/2}$	+.1	--
3	4279.185	23362.36		$314_{3/2}-5482_{5/2}$	−.04	--
6	4280.59	23354.7		$275_{9/2}-5086_{7/2}$ $231_{5/2}-4650_{5/2}$ $244_{5/2}-4777_{3/2}$	.0 +.1 +.2	-- -- --
2	4281.664	23348.83		$163_{11/2}-3965_{9/2}$	−.01	--
10	4282.734	23343.00		$164_{3/2}-3967_{5/2}$	−.01	--
1h	4285.55	23327.6		$311_{5/2}-5451_{7/2}$	−.2	--
10	4286.463	23322.69	(?) 1.267h	$271_{7/2}-5046_{5/2}$	+.02	--
100	4291.17	23297.1	(**.068**, .208) 1.420, 1.579, **1.740**.	$166_{9/2}-3991_{11/2}$	.0	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
30	4291.654	23294.48		$157_{5/2}-3906_{5/2}$ $146_{5/2}-3791_{3/2}$	−.02 +.07	-- --
2	4294.62	23278.4		$244_{5/2}-4770_{3/2}$	.0	--
20	4299.917	23249.72		$239_{11/2}-4720_{9/2}$	−.01	--
4	4301.052	23243.58		$244_{5/2}-4766_{7/2}$	−.03	--
4	4301.774	23239.68		$272_{9/2}-5040_{9/2}$	+.02	--
3d	4302.11	23237.9		$138_{3/2}-3706_{3/2}$	+.4	--
100	4304.404	23225.48	(0w) 1.110B	$166_{9/2}-3984_{7/2}$	+.01	--
2	4304.78	23223.5		$311_{5/2}-5440_{5/2}$	.0	--
15	4305.334	23220.47	(.261, **.783**)	$204_{3/2}-4370_{3/2}$	.00	--
4	4308.802	23201.78		$266_{5/2}-4986_{7/2}$	−.01	--
9	4309.474	23198.16		$231_{5/2}-4635_{7/2}$	−.02	--
2h	4313.31	23177.5		$341_{9/2}-5737_{7/2}$	.0	--
15	4314.578	23170.72	(.121, .359, .596, **.833**).	$217_{7/2}-4494_{7/2}$	.00	--
20	4315.71	23164.7	(.293)	$142_{7/2}-3738_{5/2}$	+.1	--
4	4316.18	23162.1		$301_{1/2}-5329_{3/2}$	−.1	--
5	4317.11	23157.2		$273_{11/2}-5040_{9/2}$	+.1	--
2h	4317.68	23154.1		$298_{5/2}-5296_{3/2}$	.0	--
2h	4317.93	23152.8		$280_{5/2}-5118_{3/2}$	+.1	--
10	4318.585	23149.21		$272_{9/2}-5031_{7/2}$ $275_{9/2}-5066_{11/2}$	−.14 +.01	-- --
15	4319.531	23144.15	(**.093**, .279, .464).	$146_{5/2}-3776_{7/2}$	−.04	--
3	4324.33	23118.4		$261_{3/2}-4925_{3/2}$	−.1	--
3	4329.076	23093.12		$306_{9/2}-5373_{7/2}$	−.01	--
2h	4331.14	23082.1		$311_{5/2}-5426_{5/2}$	.0	--
3	4331.365	23080.91		$298_{5/2}-5288_{5/2}$	−.05	--
80	4332.25	23076.2	(.106) 1.208D	$146_{5/2}-3769_{5/2}$	.0	19
9	4335.860	23056.99	(**.037**, .112, .187) 1.478B.	$298_{5/2}-5285_{7/2}$	−.07	--
8	4339.68	23036.7		$166_{9/2}-3965_{9/2}$	.0	--
1	4345.32	23006.8		$314_{3/2}-5446_{3/2}$	.0	--
2	4345.505	23005.81		$266_{5/2}-4966_{3/2}$	−.01	--
4	4352.46	22969.1		$271_{7/2}-5011_{5/2}$	−.1	--
10	4357.06	22944.8		$247_{7/2}-4766_{7/2}$	.0	--
100	4358.69	22936.2	(**.088**, .262, .437) 1.188, 1.363, 1.533, 1.707, **1.880**.	$115_{5/2}-3452_{7/2}$	−.1	--
7	4359.310	22932.96		$244_{5/2}-4735_{7/2}$	.00	--
10	4360.375	22927.36		$204_{3/2}-4341_{5/2}$	−.02	--
4	4361.26	22922.7		$221_{9/2}-4508_{11/2}$	+.1	--
6	4363.37	22911.6		$266_{5/2}-4957_{5/2}$	−.1	--
10	4364.13	22907.6	(.333w)	$305_{11/2}-5346_{11/2}$	.0	--
9	4364.851	22903.85	(.070, .209, **.347**.)	$280_{5/2}-5093_{5/2}$	−.01	--
1	4366.35	22896.0		$341_{9/2}-5709_{7/2}$	.0	--
100	4367.58	22889.5	(.621, .776, **.929**) .862, 1.014, **1.168**, 1.323, 1.476.	$163_{11/2}-3919_{11/2}$	−.1	--
2	4369.64	22878.7	(.581w)	$273'_{1/2}-5026_{3/2}$	−.1	20
4	4369.77	22878.1		$273''_{1/2}-5026_{3/2}$	+.1	
5	4373.202	22860.11	(.720)	$204_{3/2}-4334_{3/2}$	−.01	--
2	4377.056	22839.98		$319_{7/2}-5482_{5/2}$	−.05	--
3	4377.44	22838.0		$288_{7/2}-5164_{7/2}$	.0	--
1	4380.45	22822.3		$306_{9/2}-5346_{11/2}$	+.1	--
(10)	4381.00	22819.4		$305_{11/2}-5337_{9/2}$	.0	7
10	4385.443	22796.30	 (**.108**, .324)	$275_{9/2}-5031_{7/2}$ $194_{5/2}-4225_{3/2}$	−.10 .00	-- --
2	4386.14	22792.7		$3526_{5/2}-5806_{7/2}$	.0	--
10	4387.404	22786.11	(**.160**, .428)	$221_{9/2}-4494_{7/2}$	+.03	--
(2)	4388.52	22780.3		$288_{7/2}-5159_{5/2}$	+.1	13
100	4391.342	22765.68	(**.045**, .134, .224) 1.747	$117_{9/2}-3452_{7/2}$	−.05	--
3	4392.122	22761.64		$304_{3/2}-5328_{1/2}$	−.04	--
40	4392.45	22760.0	(?) .988, **1.075**	$146_{5/2}-3738_{5/2}$	.0	--
80	4394.30	22750.3	(.437) **1.053**, 1.928	$151_{1/2}-3791_{3/2}$	+.3	24
50	4394.46	22749.5			−.5	
10	4396.089	22741.10		$221_{9/2}-4490_{7/2}$	−.01	--
30	4396.802	22737.41	(**.184**, .550) **.784**, 1.151	$164_{3/2}-3906_{5/2}$	.00	--
8	4399.80	22721.9		$271_{7/2}-4986_{7/2}$	−.2	--
40	4402.600	22707.47	(.662) .700, .881, **1.062**, 1.243, 1.424.	$150_{7/2}-3776_{7/2}$	+.01	--
5	4403.683	22701.88		$272_{9/2}-4986_{7/2}$	+.01	--
1	4404.27	22698.8		$224_{3/2}-4512_{3/2}$	−.2	--
20	4406.30	22688.4	(.883) .150	$172_{1/2}-3992_{3/2}$	−.1	--
30	4406.47	22687.5	(000) 1.251 	$163_{11/2}-3899_{9/2}$ $285_{7/2}-5122_{7/2}$	−.1 .0	-- --
3	4408.64	22676.4		$288_{7/2}-5148_{9/2}$ $244_{5/2}-4710_{5/2}$	.0 +.2	-- --
2h	4410.39	22667.4		$288_{7/2}-5147_{5/2}$	+.1	--
(1)	4412.52	22656.4		$311_{5/2}-5384_{3/2}$	−.1	23
1	4413.500	22651.39		$285_{7/2}-5119_{9/2}$	+.03	5
80	4415.822	22639.48	(0w) .987C†	$150_{7/2}-3769_{5/2}$	+.01	--
8	4417.22	22632.3		$151_{1/2}-3779_{1/2}$	+.2	24
10	4417.33	22631.8			−.3	
2h	4419.86	22618.8		$313_{9/2}-5401_{7/2}$	−.1	--
2	4423.810	22598.60		$304_{3/2}-5312_{3/2}$	+.01	--
2	4425.762	22588.63		$266_{5/2}-4925_{3/2}$	+.04	--
(4)	4425.95	22587.7		$338_{7/2}-5641_{9/2}$	+.1	13
2	4427.67	22578.9		$244_{5/2}-4700_{3/2}$	.0	--
7	4427.951	22577.47		$166_{9/2}-3919_{11/2}$	+.01	--
2h	4428.864	22572.81		$298_{5/2}-5237_{7/2}$	+.07	--
41	4432.846	22552.53		$311_{5/2}-5373_{7/2}$	+.15	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	K				
3	4436.614	22533.38		$217_{7/2}-4430_{5/2}$	+.05	--
20	4440.44	22514.0	(?) 1.255	$173_{7/2}-3984_{7/2}$	+.1	--
2h	4445.97	22486.0		$285_{7/2}-5102_{9/2}$	+.2	--
2	4448.115	22475.12		$273'_{1/2}-4985_{1/2}$	−.01	--
2	4448.259	22474.39		$273''_{1/2}-4985_{1/2}$	+.06	--
2	4453.26	22449.2		$217_{7/2}-4422_{9/2}$	.0	--
20	4453.92	22445.8		$3592_{9/2}-5836_{9/2}$	−.1	--
50	4454.62	22442.3	(.257) .893, 1.415, **1.933.**	$146_{5/2}-3706_{3/2}$	+.1	--
3	4456.370	22433.49		$280_{5/2}-5046_{5/2}$	+.01	--
6	4456.668	22431.99		$271_{7/2}-4957_{5/2}$	+.01	--
2	4457.47	22428.0		$304_{3/2}-5296_{3/2}$	+.1	--
3	4459.405	22418.22		$239_{11/2}-4637_{9/2}$	−.03	--
2	4464.627	22392.00		$285_{7/2}-5093_{5/2}$	−.05	--
5	4465.834	22385.95		$194_{5/2}-4184_{7/2}$	−.01	--
15	4467.544	22377.38		$247_{7/2}-4710_{5/2}$	−.01	--
40	4467.924	22375.47		$166_{9/2}-3899_{9/2}$	+.02	--
2	4472.06	22354.8		$304_{3/2}-5288_{5/2}$	+.1	--
4	4473.23	22348.9		$275_{9/2}-4986_{7/2}$	.0	--
80	4475.082	22339.68	(.073, .217, .362) 1.328, 1.475, **1.621.**	$173_{7/2}-3967_{5/2}$	−.02	--
6	4476.78	22331.2		$278_{3/2}-5015_{5/2}$	.0	--
3	4477.642	22326.92		$285_{7/2}-5086_{7/2}$	+.05	--
30	4477.986	22325.20	(.091)	$173_{7/2}-3965_{9/2}$	+.03	--
60	4478.386	22323.20	(.079, .242) 1.068, 1.232, 1.375, **1.557.**	$150_{7/2}-3738_{5/2}$	−.02	--
10	4481.443	22307.98		$231_{5/2}-4546_{7/2}$ $244_{5/2}-4673_{3/2}$	−.04 .00	-- --
3h	4486.58	22282.4		$278_{3/2}-5011_{5/2}$	−.2	--
5	4486.991	22280.39		$280_{5/2}-5031_{7/2}$	+.01	--
15	4496.432	22233.62	(?) .796	$197_{1/2}-4199_{1/2}$	−.03	--
10	4498.378	22224.00		$244_{5/2}-4664_{5/2}$	−.02	--
3	4499.04	22220.7		$263_{13/2}-4856_{11/2}$	.0	--
4	4502.52	22203.6		$311_{5/2}-5338_{5/2}$	−.1	--
4	4504.41	22194.3		$319_{7/2}-5417_{7/2}$	.0	--
100	4507.035	22181.31	(.814) .186†	$2885_{5/2}-5104_{5/2}$ $305_{11/2}-5274_{9/2}$	−.07 .00	21 25
60	4508.007	22176.52	(?) .121, .418†	$2885_{5/2}-5103_{3/2}$	−.03	21
1	4508.39	22174.6		$217_{7/2}-4394_{5/2}$	.0	--
500	4513.31	22150.5	(.350) 1.967A	$2044_{7/2}-4259_{7/2}$	.0	--
20	4514.26	22145.8		$2888_{7/2}-5104_{5/2}$	.0	--
200	4516.638	22134.15	(.151, .475, .800)†.	$2885_{5/2}-5098_{7/2}$	−.14	--
1	4517.774	22128.58		$280_{5/2}-5015_{5/2}$	+.03	--
3	4518.570	22124.69		$272_{9/2}-4928_{11/2}$	−.03	--
80	4519.762	22118.85	(.975) .894, 1.291, **1.684** . . . †	$2885_{5/2}-5097_{5/2}$	−.14	--
400	4522.73	22104.3	P–B	$2888_{7/2}-5099_{9/2}$	−.1	26
100	4523.878	22098.72	P–B	$2888_{7/2}-5098_{7/2}$	−.03	26
80	4526.009	22088.32	P–B	$2896_{3/2}-5105_{1/2}$	.00	26
10	4526.98	22083.6		$2888_{7/2}-5097_{5/2}$	+.1	--
60	4528.966	22073.90	P–B	$298_{5/2}-5187_{3/2}$ $2896_{3/2}-5104_{5/2}$	−.15 −.11	-- 26
150	4529.950	22069.11	P–B	$2896_{3/2}-5103_{3/2}$	−.07	26
30	4530.889	22064.53		$221_{9/2}-4422_{9/2}$	−.01	--
40	4536.014	22039.60	(.512, .713) 1.246, **1.452**, 1.699.	$217_{7/2}-4381_{7/2}$	−.01	--
3	4537.54	22032.2		$324_{5/2}-5446_{3/2}$ $278_{3/2}-4985_{1/2}$	−.1 +.3	-- --
50	4541.80	22011.5		$2896_{3/2}-5097_{5/2}$	−.1	--
100	4545.174	21995.19	(0w) 1.356	$157_{5/2}-3776_{7/2}$	−.04	--
10	4545.53	21993.5		$224_{3/2}-4441_{1/2}$	.0	--
4	4551.502	21964.61		$306_{9/2}-5261_{7/2}$	−.07	--
3	4556.025	21942.80		$304_{3/2}-5246_{1/2}$	−.05	--
4	4557.33	21936.5		$313_{9/2}-5333_{7/2}$	.0	--
50	4559.268	21927.19		$157_{5/2}-3769_{5/2}$	−.05	--
50	4559.682	21925.20	(.129) .616, **.874.**	$247_{7/2}-4664_{5/2}$	.00	--
7	4563.63	21906.2		$333_{11/2}-5522_{11/2}$	−.01	--
4	4564.633	21901.42		$166_{9/2}-3852_{7/2}$	−.04	--
50	4565.30	21898.2		$151_{1/2}-3706_{3/2}$	+.4	27
60	4565.51	21897.2			−.6	27
2h	4568.748	21881.70		$271_{7/2}-4902_{5/2}$	+.06	--
(1)	4571.91	21866.6		$272_{9/2}-4903_{7/2}$	+.1	23
4	4572.195	21865.20		$280_{5/2}-4989_{3/2}$	−.05	--
2	4575.935	21847.33		$298_{5/2}-5164_{7/2}$	−.11	--
3	4577.550	21839.62		$278_{3/2}-4966_{3/2}$	+.02	--
4	4578.251	21836.28		$221_{9/2}-4399_{11/2}$	+.02	--
3h	4578.93	21833.1		$314_{3/2}-5329_{3/2}$ $324_{5/2}-5426_{5/2}$ $280_{5/2}-4986_{7/2}$	.0 +.1 +.2	-- -- --
100	4580.68	21824.7	(.341, .562) 1.177, **1.394**, 1.611.	$115_{5/2}-3340_{5/2}$	−.1	--
3	4586.06	21799.1		$197_{1/2}-4155_{3/2}$	−.1	--
8	4587.141	21793.96		$217_{7/2}-4356_{5/2}$	.00	--
(2)	4588.95	21785.4		$247_{7/2}-4650_{5/2}$	+.2	23
3	4590.540	21777.82		$298_{5/2}-5157_{3/2}$	+.15	--
20	4591.682	21772.40		$204_{3/2}-4225_{3/2}$	−.06	--
4	4592.53	21768.4		$285_{7/2}-5031_{7/2}$ $311_{5/2}-5296_{3/2}$	−.2 .0	-- --
4	4595.263	21755.44		$319_{7/2}-5373_{7/2}$	−.03	--
5	4597.32	21745.7		$278_{3/2}-4957_{5/2}$	+.2	--
1	4599.764	21734.15		$173_{7/2}-3906_{5/2}$	+.05	--
1h	4601.13	21727.7		$306_{9/2}-5237_{7/2}$	−.1	--
200	4605.73	21706.0	(0w) 1.312B	$194_{5/2}-4116_{7/2}$	.0	--
3	4607.80	21696.3		$272_{9/2}-4885_{7/2}$	.0	--
4	4608.802	21691.53		$304_{3/2}-5221_{5/2}$	+.02	--
1h	4609.81	21686.8		$244_{5/2}-4611_{5/2}$	.0	--
5	4613.95	21667.3		$305_{11/2}-5222_{13/2}$	.0	--
50	4614.66	21664.0	(.000) 1.248h	$173_{7/2}-3899_{9/2}$	+.1	--
30	4616.57	21655.1		$221_{9/2}-4381_{7/2}$	+.1	--
80	4621.38	21632.5	(.439, **.724**) 1.003, **1.274**, 1.553†.	$217_{7/2}-4340_{7/2}$	.0	26
(1h)	4624.73	21616.8		$285_{7/2}-5015_{5/2}$	+.1	23
30	4625.96	21611.1		$157_{5/2}-3738_{5/2}$	+.1	--
1	4628.76	21598.0		$314_{3/2}-5305_{5/2}$	−.1	--
7	4630.24	21591.1		$288_{7/2}-5040_{9/2}$	.0	--
80	4630.82	21588.4	(?) 1.594	$164_{3/2}-3791_{3/2}$	.0	--
3	4635.78	21565.3		$231_{5/2}-4472_{3/2}$	.0	--
1h	4640.63	21542.8		$280_{5/2}-4957_{5/2}$	.0	--
1h	4640.94	21541.3		$332_{5/2}-5482_{5/2}$	−.1	--
2	4642.68	21533.3		$261_{3/2}-4765_{1/2}$	+.2	--
20	4644.95	21522.7		$266_{5/2}-4818_{7/2}$	−.1	--
10	4647.46	21511.1		$263_{13/2}-4785_{11/2}$	+.1	--
4	4648.56	21506.0		$2888_{7/2}-5039_{9/2}$	.0	--
1h	4649.19	21503.1		$3776_{7/2}-5926_{5/2}$	.0	--
3	4649.70	21500.8		$288_{7/2}-5031_{7/2}$	.0	--
3h	4650.825	21495.54		$333_{11/2}-5481_{9/2}$	−.01	--
1h	4651.20	21493.8		$314_{3/2}-5296_{3/2}$	.0	--
4	4651.82	21491.0		$314_{3/2}-5295_{3/2}$	.0	--
100	4652.33	21488.6	(.087, .254) 1.447, 1.630, 1.796, **1.963.**	$194_{5/2}-4094_{7/2}$	.0	--
2	4652.77	21486.6		$2885_{5/2}-5034_{5/2}$	+.2	--
10	4654.53	21478.4		$2885_{5/2}-5033_{3/2}$	.0	--
2h	4656.29	21470.3		$164_{3/2}-3779_{1/2}$	−.1	--
10	4656.47	21469.5		$2888_{7/2}-5035_{7/2}$	.0	--
10	4660.51	21450.8		$2888_{7/2}-5034_{5/2}$ $244_{5/2}-4587_{5/2}$	−.1 −.1	-- --
9	4661.483	21446.39		$301_{1/2}-5157_{3/2}$	−.09	5
60	4662.493	21441.75		$138_{3/2}-3526_{5/2}$	−.07	--
8	4662.99	21439.4		$270_{13/2}-4856_{11/2}$	−.1	--
5	4665.217	21429.23		$298_{5/2}-5122_{7/2}$	−.03	--
6	4666.713	21422.36		$278_{3/2}-4925_{3/2}$	−.01	--
2	4669.81	21408.1		$272_{9/2}-4856_{11/2}$	−.2	--
9	4674.304	21387.57		$239_{11/2}-4534_{9/2}$	.00	--
2	4675.38	21382.6		$298_{5/2}-5118_{3/2}$	.0	--
15	4679.476	21363.93		$194_{5/2}-4082_{5/2}$	−.01	--
2h	4681.89	21352.9		$319_{7/2}-5333_{7/2}$ $3791_{3/2}-5926_{5/2}$	−.1 .0	-- --
60	4682.319	21350.96		$194_{5/2}-4080_{3/2}$	.00	--
(5h)	4684.02	21343.2		$275_{9/2}-4885_{7/2}$	−.1	7
1h	4685.20	21337.8		$319_{7/2}-5332_{9/2}$	−.2	--
(15)	4687.858	21325.74		$273_{11/2}-4856_{11/2}$	−.01	3
1h	4688.87	21321.1		$285_{7/2}-4986_{7/2}$	.0	--
4h	4691.45	21309.4		$266_{5/2}-4797_{5/2}$	.0	--
1	4692.80	21303.3		$324_{5/2}-5373_{7/2}$	.0	--
8	4693.38	21300.7		$306_{9/2}-5194_{11/2}$	+.1	--
30	4694.99	21293.6		$221_{9/2}-4345_{9/2}$ $157_{5/2}-3706_{3/2}$	+.1 +.2	-- --
2h	4698.08	21279.3		$224_{3/2}-4370_{3/2}$	−.1	--
4	4699.69	21272.0		$275_{9/2}-4878_{7/2}$	.0	--
50	4700.440	21268.65		$217_{7/2}-4304_{5/2}$	+.03	--
60	4705.04	21247.8		$221_{9/2}-4340_{7/2}$	.0	--
2	4711.22	21220.0		$280_{5/2}-4925_{3/2}$	+.3	--
20	4712.76	21213.0		$247_{7/2}-4593_{7/2}$	.0	--
4	4725.02	21158.0		$263_{13/2}-4750_{13/2}$	+.2	--
20	4725.93	21153.9		$231_{5/2}-4430_{5/2}$	.0	--
80	4727.60	21146.5		$224_{3/2}-4356_{5/2}$ $166_{9/2}-3776_{7/2}$	.0 +.1	-- --
2h	4730.43	21133.8		$298_{5/2}-5093_{5/2}$	.0	--
4	4733.87	21118.5		$266_{5/2}-4777_{3/2}$	.0	5
4	4743.46	21075.7		$319_{7/2}-5305_{5/2}$	−.1	--
5	4746–24	21063.4		$304_{3/2}-5159_{5/2}$	−.1	--
8	4748.06	21055.3		$275_{9/2}-4856_{11/2}$	.0	--
80	4748.38	21053.9		$164_{3/2}-3738_{5/2}$	.0	--
40	4749.03	21051.0		$142_{7/2}-3526_{5/2}$ $197_{1/2}-4089_{3/2}$	−.1 +.1	-- --
5	4750.99	21042.4		$266_{5/2}-4770_{3/2}$	.0	--
1	4751.23	21041.3		$261_{3/2}-4718_{1/2}$	.0	--
10	4751.345	21040.78		$261_{3/2}-4717_{3/2}$	+.1	--
4	4752.10	21037.4		$244_{5/2}-4546_{7/2}$	.0	--
40	4758.833	21007.67		$115_{5/2}-3259_{3/2}$ $266_{5/2}-4766_{7/2}$	.00 +.09	-- --
20	4763.672	20986.34		$224_{3/2}-4341_{5/2}$	+.06	--
4	4771.807	20950.56		$304_{3/2}-5147_{5/2}$	+.01	--
4h	4778.99	20919.1		$224_{3/2}-4334_{3/2}$	+.1	--
2h	4781.83	20906.6		$244_{5/2}-4533_{5/2}$	.0	--
10	4789.206	20874.45		$319_{7/2}-5285_{7/2}$	.00	--
3	4789.60	20872.7		$261_{3/2}-4700_{3/2}$	−.1	--
200	4791.418	20864.81	(**.149**, .446) 1.310, 1.599, 1.887, 2.178, **2.468.**	$150_{7/2}-3592_{9/2}$	−.02	--
4	4796.895	20840.99		$306_{9/2}-5148_{9/2}$	+.03	--
15	4799.127	20831.29		$204_{3/2}-4131_{5/2}$	.00	--
9	4799.49	20829.7		$271_{7/2}-4797_{5/2}$	.0	--
1	4802.28	20817.6		$314_{3/2}-5227_{3/2}$	−.1	--
3	4813.139	20770.65		$298_{5/2}-5057_{3/2}$	+.01	--
2	4814.92	20763.0		$288_{7/2}-4957_{5/2}$	−.2	--
2	4816.03	20758.2		$319_{7/2}-5274_{9/2}$ $271_{7/2}-4789_{5/2}$	−.1 +.1	-- --

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
(1)	4818.40	20748.0		$3852_{7/2}-5926_{5/2}$	−.1	23
20	4820.57	20738.6		$247_{7/2}-4546_{7/2}$	.0	--
2	4822.65	20729.7		$270_{13/2}-4785_{11/2}$	−.1	--
6	4829.87	20698.7		$272_{9/2}-4785_{11/2}$	+.1	--
9	4834.79	20677.6		$172_{1/2}-3791_{3/2}$	.0	--
(1)	4838.83	20660.4		$231_{5/2}-4381_{7/2}$	+.2	23
3	4845.67	20631.2		$333_{11/2}-5394_{11/2}$	.0	--
3	4846.26	20628.7		$285_{7/2}-4917_{9/2}$	+.1	--
20	4848.45	20619.4		$247_{7/2}-4534_{9/2}$	.0	--
1	4849.23	20616.0		$273_{11/2}-4785_{11/2}$	−.1	--
7	4852.57	20601.9		$313_{9/2}-5200_{9/2}$ $261_{3/2}-4673_{3/2}$ $3706_{3/2}-5766_{3/2}$	−.2 +.1 +.1	-- -- --
1h	4856.70	20584.3		$306_{9/2}-5122_{7/2}$	.0	--
5	4862.539	20559.64		$172_{1/2}-3779_{1/2}$	−.01	--
3	4870.03	20528.0		$271_{7/2}-4766_{7/2}$	+.1	--
2	4872.43	20517.9		$261_{3/2}-4664_{5/2}$	.0	--
2	4874.237	20510.30		$298_{5/2}-5031_{7/2}$	−.02	--
10	4874.85	20507.7		$272_{9/2}-4766_{7/2}$	.0	--
3	4881.278	20480.71		$285_{7/2}-4902_{5/2}$	+.07	--
3	4882.45	20475.8		$244_{5/2}-4490_{7/2}$	.0	--
3	4884.10	20468.9		$194_{5/2}-3992_{3/2}$	.0	--
2	4885.80	20461.8		$311_{5/2}-5164_{7/2}$	+.1	--
200	4889.14	20447.8		$0_{5/2}-2044_{7/2}$	.0	--
4	4892.222	20434.90		$173_{7/2}-3776_{7/2}$	+.07	--
10	4896.167	20418.43		$275_{9/2}-4793_{7/2}$	+.19	--
6	4899.634	20403.99		$311_{5/2}-5159_{5/2}$	−.01	--
15	4903.73	20386.9		$194_{5/2}-3984_{7/2}$	.0	--
2	4904.75	20382.7		$306_{9/2}-5102_{9/2}$	+.1	--
1	4905.93	20377.8		$261_{3/2}-4650_{5/2}$	.0	--
30	4906.208	20376.65		$270_{13/2}-4750_{13/2}$	.00	--
20	4908.562	20366.88		$173_{7/2}-3769_{5/2}$	+.04	--
4	4909.066	20364.78		$217_{7/2}-4214_{9/2}$	+.12	--
4	4914.34	20342.9		$266_{5/2}-4700_{3/2}$	.0	--
100	4915.020	20340.11	(**.160**, .481) **.645**, .965, 1.285.	$204_{3/2}-4082_{5/2}$	+.01	--
6	4917.84	20328.5		$204_{3/2}-4081_{1/2}$	+.1	--
(2)	4922.366	20309.76		$298_{5/2}-5011_{5/2}$	−.14	3
200	4923.903	20303.42	(.183, .297, **.409**) 1.276, **1.390**, 1.505.	$142_{7/2}-3452_{7/2}$	+.03	--
2h	4925.99	20294.8		$244_{5/2}-4472_{3/2}$	+.1	--
4	4926.893	20291.10		$311_{5/2}-5147_{5/2}$	+.03	--
3	4928.585	20284.13		$3738_{5/2}-5766_{3/2}$	+.11	--
2	4932.350	20268.65		$239_{11/2}-4422_{9/2}$	+.07	--
30	4932.734	20262.96		$338_{7/2}-5408_{7/2}$ $273_{11/2}-4750_{13/2}$	−.05 +.05	-- --
15	4935.842	20254.31		$231_{5/2}-4341_{5/2}$	+.01	--
2h	4940.53	20235.1		$319_{7/2}-5221_{5/2}$	.0	--
8	4943.73	20222.0		$247_{7/2}-4494_{7/2}$	+.1	--
7	4944.867	20217.34		$271_{7/2}-4735_{7/2}$	+.11	--
150	4946.72	20209.8		$150_{5/2}-3526_{5/2}$	.0	--
20	4949.82	20197.1		$272_{9/2}-4735_{7/2}$	+.1	--
2	4952.270	20187.12		$231_{5/2}-4334_{3/2}$	+.08	--
3	4955.286	20174.83		$324_{5/2}-5261_{7/2}$	−.04	--
100	4956.765	20168.82	(?) .170	$197_{1/2}-3992_{3/2}$	−.02	--
2h	4960.42	20154.0		$280_{5/2}-4818_{7/2}$	+.1	--
10	4961.383	20150.04		$333_{11/2}-5346_{11/2}$	+.04	--
10	4963.065	20143.21		$278_{5/2}-4797_{5/2}$	+.04	--
10	4969.435	20117.39		$314_{3/2}-5157_{3/2}$	−.04	--
8	4972.836	20103.64		$305_{11/2}-5066_{11/2}$	+.04	--
2	4976.932	20087.09		$313_{9/2}-5148_{9/2}$	+.10	--
7	4980.677	20071.99		$266_{5/2}-4673_{3/2}$	+.04	--
20	4981.544	20068.49		$217_{7/2}-4184_{7/2}$	+.04	--
200	4985.978	20050.65		$173_{7/2}-3738_{5/2}$	+.06	--
5	4987.521	20044.45		$304_{3/2}-5057_{3/2}$ $272_{9/2}-4720_{9/2}$	+.03 +.07	-- --
3	4994.02	20018.4		$319_{7/2}-5200_{9/2}$	.0	--
1	4994.48	20016.5		$314_{3/2}-5147_{5/2}$	.0	--
1	4996.22	20009.6		$261_{3/2}-4614_{1/2}$	+.1	--
4	4997.74	20003.5		$333_{11/2}-5332_{9/2}$	+.1	--
(2)	4999.39	19996.9		$311_{5/2}-5118_{3/2}$	.0	23
10	5003.60	19980.0		$221_{9/2}-4214_{9/2}$	.0	--
1	5006.68	19967.7		$3769_{5/2}-5766_{3/2}$	−.1	--
6	5008.14	19961.9		$273_{11/2}-4720_{9/2}$	.0	--
4	5010.56	19952.3		$278_{3/2}-4777_{3/2}$	.0	--
1	5014.35	19937.2		$304_{3/2}-5046_{5/2}$	.0	--
2	5024.022	19898.82		$146_{5/2}-3452_{7/2}$	+.03	--
20	5026.452	19889.20		$231_{5/2}-4304_{5/2}$	−.01	--
15	5027.943	19883.30		$244_{5/2}-4430_{5/2}$	−.03	--
2	5029.75	19876.2		$278_{3/2}-4770_{3/2}$	+.1	--
1h	5031.57	19869.0		$280_{5/2}-4789_{5/2}$	+.1	--
2h	5031.94	19867.5		$3779_{1/2}-5766_{3/2}$	.0	--
1h	5036.88	19848.0		$266_{5/2}-4650_{5/2}$	.0	--
3H	5041.40	19830.2		$313_{9/2}-5122_{7/2}$	−.1	--
7	5042.631	19825.38		$172_{1/2}-3706_{3/2}$	+.03	--
2	5052.20	19787.8		$273''_{1/2}-4718_{1/2}$ $273'_{1/2}-4717_{3/2}$	+.1 +.1	-- --
1	5052.365	19787.19		$273''_{1/2}-4717_{3/2}$	+.3	--
1h	5054.95	19777.1		$332_{5/2}-5305_{5/2}$	.0	--
10	5056.063	19772.72		$298_{5/2}-4957_{5/2}$	−.01	--
100	5058.557	19762.97		$138_{3/2}-3358_{3/2}$	−.03	--
5	5060.427	19755.66		$306_{9/2}-5040_{9/2}$	−.02	--
3	5065.31	19736.6		$304_{3/2}-5026_{3/2}$	.0	--
2	5067.544	19727.92		$301_{1/2}-4985_{1/2}$	−.04	--
4	5068.85	19722.9		$244_{5/2}-4414_{3/2}$	−.2	--
6	5078.423	19685.66		$261_{3/2}-4581_{1/2}$	−.03	--
1	5081.573	19673.46		$280_{5/2}-4770_{3/2}$	.00	--
6	5090.57	19638.7		$280_{5/2}-4766_{7/2}$	.0	--
3	5093.19	19628.6		$313_{9/2}-5102_{9/2}$	−.1	--
150	5096.50	19615.8		$163_{11/2}-3592_{9/2}$	−.1	--
2	5098.782	19607.06		$319_{7/2}-5159_{5/2}$	−.03	--
2	5100.70	19599.7		$332_{5/2}-5288_{5/2}$	.0	--
20	5104.66	19584.5		$247_{7/2}-4430_{5/2}$	.0	--
10	5105.15	19582.6		$138_{3/2}-3340_{5/2}$	.0	--
10	5108.78	19568.7	(?) .585	$224_{3/2}-4199_{1/2}$	.0	19
15	5112.265	19555.35		$263_{13/2}-4590_{11/2}$	+.06	--
1	5113.25	19551.6		$306_{9/2}-5019_{9/2}$	.0	--
1	5115.18	19544.2		$341_{9/2}-5373_{7/2}$	.0	--
2	5116.90	19537.6		$217_{7/2}-4131_{5/2}$	.0	--
2	5117.42	19535.6		$301_{1/2}-4966_{3/2}$	−.1	--
30	5120.32	19524.6		$244_{5/2}-4394_{5/2}$	.0	--
9	5124.597	19508.29		$271_{7/2}-4664_{5/2}$	.00	--
20	5126.70	19500.3		$247_{7/2}-4422_{9/2}$	−.1	--
4	5140.058	19449.61		$298_{5/2}-4925_{3/2}$	−.03	--
3	5141.288	19444.96		$204_{3/2}-3992_{3/2}$	−.06	--
6	5145.593	19428.69		$285_{7/2}-4797_{5/2}$	.00	--
15	5146.89	19423.8		$3984_{7/2}-5926_{5/2}$ $333_{11/2}-5274_{9/2}$	−.2 +.1	-- --
15	5156.248	19388.54		$217_{7/2}-4116_{7/2}$	+.03	--
30	5161.650	19368.25		$271_{7/2}-4650_{5/2}$	−.02	--
2	5167.860	19344.98		$278_{3/2}-4718_{1/2}$	−.2	--
2	5172.370	19328.11		$280_{5/2}-4735_{7/2}$	+.07	--
80	5178.891	19303.77		$166_{9/2}-3592_{9/2}$	+.03	--
20	5181.741	19293.16		$221_{9/2}-4145_{9/2}$	+.02	--
3	5185.896	19277.70		$311_{5/2}-5046_{5/2}$	−.02	--
2	5186.149	19276.76		$244_{5/2}-4370_{3/2}$	−.04	--
1	5186.423	19275.74		$266_{5/2}-4593_{7/2}$	−.01	--
8	5199.89	19225.8		$247_{7/2}-4394_{5/2}$	.0	--
4	5200.82	19222.4		$298_{5/2}-4902_{5/2}$	.0	--
1	5202.83	19215.0		$266_{5/2}-4587_{5/2}$	+.1	--
2	5203.46	19212.6		$324_{5/2}-5164_{7/2}$	−.1	--
1h	5206.74	19200.5		$261_{3/2}-4533_{5/2}$	.0	--
200	5209.08	19191.9		$142_{7/2}-3340_{5/2}$	.0	--
10	5209.927	19188.78		$204_{3/2}-3967_{5/2}$	−.01	--
1	5210.93	19185.1		$341_{9/2}-5337_{9/2}$	.0	--
5H	5214.43	19172.2		$3919_{11/2}-5836_{9/2}$	.0	--
5	5214.716	19171.16		$217\ _{2}-4094_{7/2}$	+.03	--
2	5217.49	19161.0		$288_{7/2}-4797_{5/2}$	.0	--
5	5222.124	19143.96		$244_{5/2}-4356_{5/2}$	.00	--
1	5222.733	19141.73		$280_{5/2}-4717_{3/2}$ $341_{9/2}-5333_{7/2}$	−.1 .0	-- --
1	5223.022	19140.67		$304_{3/2}-4966_{3/2}$	+.02	--
10	5224.786	19134.21		$224_{3/2}-4155_{3/2}$	−.04	--
2h	5226.805	19126.82		$285_{7/2}-4766_{7/2}$	−.06	--
1	5229.087	19118.47		$301_{1/2}-4925_{3/2}$	+.02	--
1	5231.31	19110.3		$314_{3/2}-5057_{3/2}$	−.1	--
20	5234.306	19099.41		$231_{5/2}-4225_{3/2}$	+.03	--
10	5236.660	19090.82		$247_{7/2}-4381_{7/2}$	+.03	--
2	5243.52	19065.8		$3899_{9/2}-5806_{7/2}$	−.1	--
10	5244.334	19062.89		$194_{5/2}-3852_{7/2}$	+.04	--
30	5248.856	19046.46		$304_{3/2}-4957_{5/2}$ $217_{7/2}-4082_{5/2}$	−.05 +.03	-- --
3	5250.085	19042.01		$324_{5/2}-5147_{5/2}$	.00	--
3	5252.34	19033.8		$338_{7/2}-5285_{7/2}$	.0	--
1h	5255.43	19022.7		$305_{11/2}-4958_{9/2}$	.0	--
3	5260.62	19003.9		$221_{9/2}-4116_{7/2}$	.0	--
(5)	5262.92	18995.6		$3906_{5/2}-5806_{7/2}$	−.1	7
4	5264.416	18990.17		$261_{3/2}-4512_{3/2}$	−.07	--
4000	5270.95	18966.6	(**.109**, .329, .549) **1.000**, 1.218, 1.436, 1.655.	$2363_{9/2}-4259_{7/2}$	+.1	--
1000	5275.56	18950.1		$0_{5/2}-1895_{5/2}$	.0	--
200	5278.245	18940.41		$164_{3/2}-3526_{5/2}$	−.02	--
2	5279.102	18937.34		$306_{9/2}-4958_{9/2}$	+.06	--
5	5284.581	18917.71		$338_{7/2}-5274_{9/2}$	+.1	--
10	5287.92	18905.8		$278_{3/2}-4673_{3/2}$	+.1	--
4	5292.278	18890.19		$224_{3/2}-4131_{5/2}$	.00	--
5	5300.75	18860.0		$275_{9/2}-4637_{9/2}$	+.1	--
3	5306.739	18838.72		$275_{9/2}-4635_{7/2}$	+.04	--
6	5311.515	18821.78		$278_{3/2}-4664_{5/2}$	+.01	--
30	5317.275	18801.39		$266_{5/2}-4546_{7/2}$	−.01	--
1h	5318.76	18796.1		$271_{7/2}-4593_{7/2}$	.0	--
2h	5319.23	18794.5		$324_{5/2}-5122_{7/2}$	.0	--
40	5321.278	18787.25		$146_{5/2}-3340_{5/2}$	−.02	--
2	5321.534	18786.34		$221_{9/2}-4094_{7/2}$ $338_{7/2}-5261_{7/2}$	−.15 −.01	-- --
2	5324.50	18775.9		$272_{9/2}-4593_{7/2}$	+.1	--
4	5325.00	18774.1		$270_{13/2}-4590_{11/2}$	.0	--
200	5327.46	18765.5		$138_{3/2}-3259_{3/2}$	.0	--
50	5331.896	18749.83		$157_{5/2}-3452_{7/2}$	.00	--
2h	5332.47	18747.8		$324_{5/2}-5118_{3/2}$	−.1	--
20	5333.85	18743.0		$272_{9/2}-4590_{11/2}$	+.1	--
3	5338.63	18726.2		$305_{11/2}-4928_{11/2}$	.0	--
4	5339.416	18723.43		$304_{3/2}-4925_{3/2}$	+.01	--
3H	5342.37	18713.1		$3965_{9/2}-5836_{9/2}$	+.2	--
2	5345.221	18703.09		$280_{5/2}-4673_{3/2}$	+.03	--
3	5349.245	18689.02		$231_{5/2}-4184_{7/2}$	−.02	--
4	5350.45	18684.82		$247_{7/2}-4341_{5/2}$	−.07	--
1h	5352.64	18677.2		$311_{5/2}-4986_{7/2}$	+.1	--
1	5353.73	18673.4		$332_{5/2}-5195_{7/2}$	.0	--
1h	5356.65	18663.2		$341_{9/2}-5285_{7/2}$	.0	--
2	5366.664	18628.37		$333_{11/2}-5194_{11/2}$	.00	--
30	5369.480	18618.60		$244_{5/2}-4304_{5/2}$	−.02	--
30	5369.797	18617.50		$138_{3/2}-3244_{1/2}$	+.01	--
4	5374.720	18600.44		$3906_{5/2}-5766_{3/2}$	−.07	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
200	5377.10	18592.2	---	$173_{7/2}-\mathit{3592}_{9/2}$	.0	--
5	5378.163	18588.53	---	$261_{3/2}-\mathit{4472}_{3/2}$	+.01	--
3	5379.707	18583.20	---	$204_{3/2}-\mathit{3906}_{5/2}$	+.01	--
1h	5390.18	18547.1	---	$341_{9/2}-\mathit{5274}_{9/2}$	+.1	--
9	5396.50	18525.4	---	$306_{9/2}-\mathit{4917}_{9/2}$	.0	--
1	5409.52	18480.8	---	$319_{7/2}-\mathit{5046}_{5/2}$	.0	--
2	5410.01	18479.1	---	$280_{5/2}-\mathit{4650}_{5/2}$	.0	--
(1)	5416.26	18457.8	---	$194_{5/2}-\mathit{3791}_{3/2}$	−.2	23
5H	5417.78	18452.6	---	$\mathit{3991}_{11/2}-5836_{9/2}$	+.1	--
(2)	5421.75	18439.1	---	$\mathit{3259}_{3/2}-5103_{3/2}$	.0	23
2	5423.29	18433.9	---	$324_{5/2}-\mathit{5086}_{7/2}$	.0	--
4	5423.60	18432.8	---	$273'_{1/2}-\mathit{4581}_{1/2}$	−.1	--
6	5423.81	18432.1	---	$273''_{1/2}-\mathit{4581}_{1/2}$	.0	--
30	5431.90	18404.6	---	$\mathit{3965}_{9/2}-5806_{7/2}$	−.1	--
10	5437.03	18387.3	---	$224_{3/2}-\mathit{4081}_{1/2}$	.0	--
3	5437.41	18386.0	---	$224_{3/2}-\mathit{4080}_{3/2}$	.0	--
2h	5443.31	18366.1	---	$332_{5/2}-\mathit{5164}_{7/2}$	−.1	--
15	5447.92	18350.5	---	$150_{7/2}-\mathit{3340}_{5/2}$	.0	--
4	5456.316	18322.29	---	$\mathit{4094}_{7/2}-5926_{5/2}$	+.03	--
2h	5458.92	18313.5	---	$278_{3/2}-\mathit{4614}_{1/2}$	.0	--
30	5460.644	18307.77	---	$194_{5/2}-\mathit{3776}_{7/2}$	+.01	--
7	5465.43	18291.7	---	$288_{7/2}-\mathit{4710}_{5/2}$	.0	--
3	5467.54	18284.7	---	$266_{5/2}-\mathit{4494}_{7/2}$	.0	--
				$278_{3/2}-\mathit{4611}_{5/2}$	+.1	--
5	5481.003	18239.76	---	$194_{5/2}-\mathit{3769}_{5/2}$	−.01	--
				$266_{5/2}-\mathit{4490}_{7/2}$	+.04	--
3	5492.19	18202.6	---	$271_{7/2}-\mathit{4534}_{9/2}$	+.2	--
2	5494.34	18195.5	---	$332_{5/2}-\mathit{5147}_{5/2}$	.0	--
2	5495.69	18191.0	---	$271_{7/2}-\mathit{4535}_{5/2}$	+.1	--
1h	5499.79	18177.5	---	$338_{7/2}-\mathit{5200}_{9/2}$	−.2	--
5	5501.921	18170.42	---	$298_{5/2}-\mathit{4797}_{5/2}$	−.02	--
3	5505.60	18158.3	---	$231_{5/2}-\mathit{4131}_{5/2}$	+.1	--
2	5514.99	18127.4	---	$319_{7/2}-\mathit{5011}_{5/2}$	+.1	--
4	5519.53	18112.5	---	$314_{3/2}-\mathit{4957}_{5/2}$	.0	--
15	5521.10	18107.3	---	$285_{7/2}-\mathit{4664}_{5/2}$	.0	--
2h	5521.83	18104.9	---	$\mathit{4116}_{7/2}-5926_{5/2}$	.0	--
8	5523.40	18099.8	---	$273_{11/2}-\mathit{4534}_{9/2}$	+.1	--
50	5532.676	18069.41	---	$217_{7/2}-\mathit{3984}_{7/2}$	+.06	--
1h	5534.35	18063.9	---	$311_{5/2}-\mathit{4925}_{3/2}$	.0	--
2h	5535.94	18058.8	---	$266_{5/2}-\mathit{4472}_{3/2}$	+.1	--
2h	5545.15	18028.8	---	$324_{5/2}-\mathit{5046}_{5/2}$	+.1	--
(1h)	5551.05	18009.6	---	$305_{11/2}-\mathit{4856}_{11/2}$	−.1	23
7	5557.20	17989.7	---	$278_{3/2}-\mathit{4581}_{1/2}$	+.1	--
100	5563.24	17970.1	---	$146_{5/2}-\mathit{3259}_{3/2}$	−.1	--
7	5564.12	17967.3	---	$285_{7/2}-\mathit{4650}_{5/2}$	.0	--
30	5573.47	17937.2	---	$173_{7/2}-\mathit{3526}_{5/2}$	+.1	--
8	5577.69	17923.6	---	$194_{5/2}-\mathit{3738}_{5/2}$	+.1	--
3	5578.38	17921.4	---	$272_{9/2}-\mathit{4508}_{11/2}$	+.1	--
2	5582.89	17906.9	---	$280_{5/2}-\mathit{4593}_{7/2}$	.0	--
30	5584.718	17901.03	---	$166_{9/2}-\mathit{3452}_{7/2}$	+.06	--
2	5592.68	17875.6	---	$324_{5/1}-\mathit{5031}_{7/2}$	.0	--
6	5594.856	17868.60	---	$298_{5/2}-\mathit{4766}_{7/2}$	−.03	--
3	5601.92	17846.1	---	$280_{5/2}-\mathit{4587}_{5/2}$	+.1	--
2h	5604.15	17839.0	---	$273_{11/2}-\mathit{4508}_{11/2}$	+.2	--
8	5607.21	17829.2	---	$275_{9/2}-\mathit{4534}_{9/2}$	−.1	--
3	5607.41	17828.6	---	$244_{5/2}-\mathit{4225}_{3/2}$	−.2	--
3h	5608.803	17824.16	---	$338_{7/2}-\mathit{5164}_{7/2}$	.00	--
3	5610.516	17818.72	---	$157_{5/2}-\mathit{3358}_{3/2}$	+.02	--
2	5614.85	17805.0	---	$271_{7/2}-\mathit{4494}_{7/2}$	.0	--
4	5619.76	17789.4	---	$314_{3/2}-\mathit{4925}_{3/2}$	.0	--
1	5621.22	17784.8	---	$272_{9/2}-\mathit{4494}_{7/2}$	.0	--
8	5625.441	17771.44	---	$313_{9/2}-\mathit{4917}_{9/2}$	−.02	--
3	5635.45	17739.9	---	$272_{9/2}-\mathit{4490}_{7/2}$	+.1	--
8	5653.018	17684.75	---	$221_{9/2}-\mathit{3984}_{7/2}$	+.04	--
4	5658.68	17667.1	---	$231_{5/2}-\mathit{4082}_{5/2}$	+.1	--
5	5662.83	17654.1	---	$231_{5/2}-\mathit{4080}_{3/2}$	+.1	--
3	5664.69	17648.3	---	$301_{1/2}-\mathit{4777}_{3/2}$	.0	--
3	5665.01	17647.3	---	$266_{5/2}-\mathit{4430}_{5/2}$	.0	--
				$263_{13/2}-\mathit{4399}_{11/2}$	.0	--
100	5667.88	17638.4	---	$157_{5/2}-\mathit{3340}_{5/2}$	+.1	--
3	5671.04	17628.6	---	$313_{9/2}-\mathit{4903}_{7/2}$	.0	--
3	5678.34	17605.9	---	$194_{5/2}-\mathit{3706}_{3/2}$	+.1	--
2h	5683.40	17590.2	---	$319_{7/2}-\mathit{4957}_{5/2}$	+.1	--
2	5684.31	17587.4	---	$332_{5/2}-\mathit{5086}_{7/2}$	.0	--
2	5686.81	17579.7	---	$\mathit{3340}_{5/2}-5098_{7/2}$	.0	--
6	5689.75	17570.6	---	$261_{3/2}-\mathit{4370}_{3/2}$	.0	--
2	5692.46	17562.2	---	$314_{3/2}-\mathit{4902}_{5/2}$	.0	--
30	5711.426	17503.90	---	$224_{3/2}-\mathit{3992}_{3/2}$	−.02	--
5	5714.02	17495.9	---	$221_{9/2}-\mathit{3965}_{9/2}$	−.1	--
15	5716.950	17486.99	---	$266_{5/2}-\mathit{4414}_{3/2}$	−.03	--
9	5725.626	17460.49	---	$324_{5/2}-\mathit{4989}_{3/2}$	+.06	--
3	5727.90	17453.6	---	$341_{9/2}-\mathit{5164}_{7/2}$	.0	--
1	5730.96	17444.2	---	$304_{3/2}-\mathit{4797}_{5/2}$	.0	--
5	5733.06	17437.9	---	$261_{3/2}-\mathit{4356}_{5/2}$	+.1	--
5	5734.26	17434.2	---	$204_{3/2}-\mathit{3791}_{3/2}$	+.1	--
2	5736.27	17428.1	---	$324_{5/2}-\mathit{4986}_{7/2}$	.0	--
2	5737.32	17424.9	---	$\mathit{4184}_{7/2}-5926_{5/2}$	.0	--
3H	5738.17	17422.3	---	$\mathit{4094}_{7/2}-5836_{9/2}$	−.1	--
7	5739.445	17418.45	---	$244_{5/2}-\mathit{4184}_{7/2}$	.00	--
10	5740.32	17415.8	---	$247_{7/2}-\mathit{4214}_{9/2}$	.0	--
2h	5749.86	17386.9	---	$313_{9/2}-\mathit{4878}_{7/2}$	−.2	--
				$275_{9/2}-\mathit{4490}_{7/2}$	+.1	--
200	5752.93	17377.6	(?) .752†	$115_{5/2}-\mathit{2896}_{3/2}$	.0	19
3	5763.41	17346.0	---	$333_{11/2}-\mathit{5066}_{11/2}$	+.1	--
1h	5773.32	17316.3	---	$204_{3/2}-\mathit{3779}_{1/2}$	+.1	--
300	5776.83	17305.7	---	$115_{5/2}-\mathit{2888}_{7/2}$	−.1	--
				$197_{1/2}-\mathit{3706}_{3/2}$	.0	--
1	5778.16	17301.8	---	$280_{5/2}-\mathit{4533}_{5/2}$	+.1	--
	A	*K*				
3	5778.343	17301.20	---	$298_{5/2}-\mathit{4710}_{5/2}$	−.03	--
7	5782.58	17288.5	---	$266_{5/2}-\mathit{4394}_{5/2}$	−.1	--
2	5783.01	17287.3	---	$306_{9/2}-\mathit{4793}_{7/2}$	+.1	--
7	5786.27	17277.5	---	$261_{3/2}-\mathit{4341}_{5/2}$	.0	--
20	5791.595	17261.61	---	$164_{3/2}-\mathit{3358}_{3/2}$	.00	--
2	5796.262	17247.71	---	$224_{3/2}-\mathit{3967}_{5/2}$	+.02	--
2	5805.77	17219.5	---	$217_{7/2}-\mathit{3899}_{9/2}$	+.2	--
10	5806.97	17215.9	---	$204_{3/2}-\mathit{3769}_{5/2}$	.0	--
4	5807.41	17214.6	---	$306_{9/2}-\mathit{4785}_{11/2}$	.0	--
8	5808.86	17210.3	---	$261_{3/2}-\mathit{4334}_{3/2}$	.0	--
4	5810.82	17204.5	---	$\mathit{4116}_{7/2}-5836_{9/2}$	.0	--
(1)	5810.96	17204.1	---	$298_{5/2}-\mathit{4700}_{3/2}$	+.1	23
20	5815.92	17189.4	---	$173_{7/2}-\mathit{3452}_{7/2}$	.0	--
2	5818.28	17182.5	---	$332_{5/2}-\mathit{5046}_{5/2}$	+.3	--
1000	5834.31	17135.2	(**.091**, .273, .457, .642) **.892**, 1.075, 1.259, 1.442, 1.626†.	$117_{9/2}-\mathit{2888}_{7/2}$	.0	--
5	5835.52	17131.7	---	$244_{5/2}-\mathit{4155}_{3/2}$	.0	--
20	5852.02	17083.4	---	$271_{7/2}-\mathit{4422}_{9/2}$	−.1	--
				$333_{11/2}-\mathit{5040}_{9/2}$	.0	--
3	5852.76	17081.2	---	$164_{3/2}-\mathit{3340}_{5/2}$	.0	--
3	5866.58	17041.0	---	$301_{1/2}-\mathit{4718}_{1/2}$	−.3	--
				$266_{5/2}-\mathit{4370}_{3/2}$	+.2	--
8	5868.05	17036.7	---	$221_{9/2}-\mathit{3919}_{11/2}$	.0	--
2	5870.71	17029.0	---	$332_{5/2}-\mathit{5031}_{7/2}$	−.1	--
1	5872.557	17023.63	---	$306_{9/2}-\mathit{4766}_{7/2}$	−.05	--
8	5899.25	16946.6	---	$305_{11/2}-\mathit{4750}_{13/2}$	−.3	--
7	5903.99	16933.0	---	$298_{5/2}-\mathit{4673}_{3/2}$	.0	--
5	5909.99	16915.8	---	$280_{5/2}-\mathit{4494}_{7/2}$	.0	--
				$\mathit{4145}_{9/2}-5836_{9/2}$	+.1	--
5	5911.14	16912.5	---	$261_{3/2}-\mathit{4304}_{5/2}$	.0	--
4	5916.66	16896.7	---	$\mathit{4116}_{7/2}-5806_{7/2}$	.0	--
9	5919.86	16887.6	---	$244_{5/2}-\mathit{4131}_{5/2}$	.0	--
2h	5925.08	16872.7	---	$301_{1/2}-\mathit{4700}_{3/2}$	−.1	--
6	5927.38	16866.2	---	$270_{13/2}-\mathit{4399}_{11/2}$	.0	--
2h	5938.83	16833.7	---	$341_{9/2}-\mathit{5102}_{9/2}$	.0	--
100	5943.24	16821.2	---	$157_{5/2}-\mathit{3259}_{3/2}$	.0	--
2	5945.46	16814.9	---	$324_{5/2}-\mathit{4925}_{3/2}$	.0	--
2h	5947.57	16808.9	---	$271_{7/2}-\mathit{4394}_{5/2}$	.0	--
10	5950.21	16801.5	---	$285_{7/2}-\mathit{4534}_{9/2}$	+.1	--
4	5954.308	16789.91	---	$285_{7/2}-\mathit{4533}_{5/2}$	+.01	--
4	5956.10	16784.9	---	$313_{9/2}-\mathit{4818}_{7/2}$	.0	--
5	5967.626	16752.44	---	$273_{11/2}-\mathit{4399}_{11/2}$	+.02	--
20	5969.77	16746.4	---	$311_{5/2}-\mathit{4793}_{7/2}$	−.1	--
				$266_{5/2}-\mathit{4340}_{7/2}$	.0	--
4	5972.58	16738.6	---	$244_{5/2}-\mathit{4116}_{7/2}$	+.1	--
6	5981.65	16713.2	---	$311_{5/2}-\mathit{4789}_{5/2}$	+.1	--
8	5982.67	16710.3	---	$275_{9/2}-\mathit{4422}_{9/2}$	.0	--
7	5983.14	16709.0	---	$298_{5/2}-\mathit{4650}_{5/2}$	.0	--
8	5989.99	16689.9	---	$231_{5/2}-\mathit{3984}_{7/2}$	.0	--
				$280_{5/2}-\mathit{4472}_{3/2}$	+.1	--
20	5995.73	16673.9	---	$271_{7/2}-\mathit{4381}_{7/2}$	.0	--
2h	6021.83	16601.6	---	$301_{1/2}-\mathit{4673}_{3/2}$	−.2	--
3	6026.53	16588.7	---	$247_{7/2}-\mathit{4131}_{5/2}$	−.1	--
(1h)	6029.05	16581.8	---	$204_{3/2}-\mathit{3706}_{3/2}$	−.1	23
2	6029.16	16581.5	---	$332_{5/2}-\mathit{4986}_{7/2}$	−.1	--
3	6030.67	16577.3	---	$338_{7/2}-\mathit{5040}_{9/2}$	−.1	--
10	6039.67	16552.6	---	$298_{5/2}-\mathit{4635}_{7/2}$	.0	--
5	6051.19	16521.1	---	$244_{5/2}-\mathit{4094}_{5/2}$	.0	--
2h	6068.42	16474.2	---	$\mathit{3452}_{7/2}-5099_{9/2}$	+.3	--
2h	6081.57	16438.6	---	$314_{3/2}-\mathit{4789}_{5/2}$	.0	--
2h	6097.20	16396.4	---	$244_{5/2}-\mathit{4082}_{5/2}$	.0	--
60	6114.22	16350.8	---	$172_{1/2}-\mathit{3358}_{3/2}$	.0	--
10	6125.47	16320.7	---	$278_{3/2}-\mathit{4414}_{3/2}$	−.1	--
6	6132.98	16300.8	---	$275_{9/2}-\mathit{4381}_{7/2}$	+.1	--
100	6145.81	16266.7	---	$271_{7/2}-\mathit{4340}_{7/2}$	.0	--
80	6146.82	16264.1	---	$164_{3/2}-\mathit{3259}_{3/2}$	.0	--
6	6169.51	16204.3	---	$314_{3/2}-\mathit{4765}_{1/2}$	+.2	--
3	6181.71	16172.3	---	$311_{5/2}-\mathit{4735}_{7/2}$	.0	--
15	6195.44	16136.4	---	$288_{7/2}-\mathit{4494}_{7/2}$	+.1	--
3	6200.734	16122.66	---	$261_{3/2}-\mathit{4225}_{3/2}$	.00	--
20	6203.24	16116.1	---	$164_{3/2}-\mathit{3244}_{1/2}$	.0	--
50	6217.97	16078.0	---	$173_{7/2}-\mathit{3340}_{5/2}$	+.1	--
4	6218.74	16076.0	---	$298_{5/2}-\mathit{4587}_{5/2}$	.0	--
60	6229.42	16048.4	---	$\mathit{2885}_{5/2}-4491_{5/2}$	.0	--
80	6243.24	16012.9	---	$\mathit{2888}_{7/2}-4491_{5/2}$	.0	--
2	6252.08	15990.3	---	$217_{7/2}-\mathit{3776}_{7/2}$	.0	--
5	6253.03	15987.8	---	$319_{7/2}-\mathit{4797}_{5/2}$	.0	--
1	6254.96	15982.9	---	$304_{3/2}-\mathit{4650}_{5/2}$	+.1	--
4	6265.07	15957.1	---	$273'_{1/2}-\mathit{4334}_{3/2}$	−.4	--
				$273''_{1/2}-\mathit{4334}_{3/2}$	+.4	--
30	6271.37	15941.1	---	$\mathit{2896}_{3/2}-4491_{5/2}$	.0	--
3	6272.14	15939.1	---	$275_{9/2}-\mathit{4345}_{9/2}$	+.1	--
30	6278.76	15922.3	---	$217_{7/2}-\mathit{3769}_{5/2}$	−.1	--
15	6286.41	15902.9	---	$271_{7/2}-\mathit{4304}_{5/2}$	.0	--
6	6290.11	15893.6	---	$275_{9/2}-\mathit{4340}_{7/2}$	.0	--
2	6298.35	15872.8	---	$\mathit{4405}_{5/2}-5992_{7/2}$	+.1	--
10	6303.42	15860.0	---	$261_{3/2}-\mathit{4199}_{1/2}$	.0	--
2h	6306.19	15853.1	---	$333_{11/2}-\mathit{4917}_{9/2}$	−.1	--
400	6307.70	15849.3	(?) 1.876B	$\mathit{2885}_{5/2}-4470_{5/2}$	+.1	28
200	6307.91	15848.7			−.5	
800	6321.90	15813.7	(?) **1.408**, 1.029, 1.650†	$\mathit{2888}_{7/2}-4470_{5/2}$	.0	--
300	6350.64	15742.1	---	$\mathit{2896}_{3/2}-4470_{5/2}$	+.3	28
200	6350.87	15741.5			−.3	
2	6362.69	15712.3	---	$314_{3/2}-\mathit{4718}_{1/2}$	.0	--
3	6362.94	15711.7	---	$314_{3/2}-\mathit{4717}_{3/2}$	+.2	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
10	6373.47	15685.7	-----	$301_{1/2}-4581_{1/2}$	.0	--
15	6382.94	15662.4	-----	$298_{5/2}-4546_{7/2}$	−.1	--
20	6405.98	15606.1	-----	$217_{7/2}-3738_{5/2}$	+.1	--
(3)	6406.16	15605.7	-----	$221_{9/2}-3776_{7/2}$	+.1	23
20	6411.47	15592.7	-----	$266_{5/2}-4225_{3/2}$	−.1	--
2h	6416.13	15581.4	-----	$278_{3/2}-4341_{5/2}$	−.1	--
2h	6422.24	15566.6	-----	$4370_{3/2}-5926_{5/2}$	.0	--
3	6436.69	15531.6	-----	$298_{5/2}-4533_{5/2}$	−.1	--
8	6449.28	15501.3	-----	$244_{5/2}-3992_{3/2}$	−.1	--
5	6501.17	15377.58	-----	$280_{5/2}-4340_{7/2}$	+.03	--
7	6502.22	15375.10	-----	$224_{3/2}-3779_{1/2}$	−.02	--
80	6511.47	15353.27	-----	$172_{1/2}-3259_{3/2}$	−.06	--
20	6515.25	15344.36	-----	$305_{11/2}-4590_{11/2}$	+.02	--
7	6529.21	15311.56	-----	$280_{5/2}-4334_{3/2}$	+.03	--
10	6544.91	15274.82	-----	$224_{3/2}-3769_{5/2}$	−.01	--
8	6545.72	15272.93	-----	$285_{7/2}-4381_{7/2}$	+.05	--
4	6554.66	15252.10	-----	$333_{11/2}-4856_{11/2}$	+.04	--
10	6557.67	15245.11	-----	$244_{5/2}-3967_{5/2}$	−.01	--
70	6577.11	15200.04	-----	$2885_{5/2}-4405_{5/2}$	+.01	--
100	6592.52	15164.51	-----	$2888_{7/2}-4405_{5/2}$	+.02	--
250	6605.19	15135.43	-----	$138_{3/2}-2896_{3/2}$	.00	29
4	6612.53	15118.62	-----	$319_{7/2}-4710_{5/2}$	.00	--
100	6623.91	15092.65	-----	$2896_{3/2}-4405_{5/2}$	−.01	--
30	6637.25	15062.32	-----	$194_{5/2}-3452_{7/2}$	−.04	--
200	6652.39	15028.03	-----	$138_{3/2}-2885_{5/2}$	−.03	--
5	6658.74	15013.70	-----	$280_{5/2}-4304_{5/2}$	.00	--
20	6665.32	14998.89	-----	$271_{7/2}-4214_{9/2}$	−.04	--
8	6675.23	14976.51	-----	$341_{9/2}-4917_{9/2}$	+.02	--
20	6683.28	14958.57	-----	$224_{3/2}-3738_{5/2}$	−.01	--
7	6688.75	14946.34	-----	$247_{7/2}-3967_{5/2}$	+.04	--
10	6711.30	14896.13	-----	$273_{11/2}-4214_{9/2}$	−.05	--
2	6723.19	14869.77	-----	$273'_{1/2}-4225_{3/2}$	−.02	--
3h	6723.55	14868.98	-----	$273''_{1/2}-4225_{3/2}$	−.01	--
6	6724.98	14865.82	-----	$285_{7/2}-4340_{7/2}$	+.08	--
10	6761.19	14786.20	-----	$204_{3/2}-3526_{5/2}$	−.01	--
6	6799.59	14702.70	-----	$271_{7/2}-4184_{7/2}$	−.02	--
5	6801.66	14698.23	-----	$306_{9/2}-4534_{9/2}$	−.01	--
5	6805.35	14690.26	-----	{ $261_{5/2}-4082_{5/2}$ { $311_{5/2}-4587_{3/2}$	.00 .00	-- --
4	6811.37	14677.28	-----	$261_{5/2}-4080_{3/2}$	.00	--
300	6813.41	14672.88	-----	$142_{7/2}-2888_{7/2}$	+.02	--
2	6816.41	14666.43	-----	{ $324_{5/2}-4710_{5/2}$ { $319_{7/2}-4664_{5/2}$	−.04 .00	-- --
300	6829.90	14637.45	(**.154**, .460) .813, 1.111†.	$142_{7/2}-2885_{5/2}$	+.13	--
3H	6835.35	14625.78	-----	$275_{9/2}-4214_{9/2}$	+.03	--
5	6844.06	14607.17	-----	$273'_{1/2}-4199_{1/2}$	+.01	--
5	6844.44	14606.36	-----	$273''_{1/2}-4199_{1/2}$	.00	--
8	6874.35	14542.81	-----	$231_{5/2}-3769_{5/2}$	−.04	--
3	6882.11	14526.41	-----	$319_{7/2}-4650_{5/2}$	.00	--
3	6963.50	14356.63	-----	$314_{3/2}-4581_{1/2}$	−.01	--
8	6967.67	14348.04	-----	$298_{5/2}-4414_{3/2}$	−.03	--
200	6971.53	14340.10	-----	$146_{5/2}-2896_{3/2}$	+.01	--
2	6976.67	14329.54	-----	$275_{9/2}-4184_{7/2}$	.00	--
20	6985.20	14312.02	-----	$271_{7/2}-4145_{9/2}$	−.03	--
150	7006.63	14268.26	-----	$146_{5/2}-2888_{7/2}$	.00	--
5	7012.56	14256.20	-----	$4341_{3/2}-5766_{3/2}$	−.12	--
200	7024.15	14232.66	-----	$146_{5/2}-2885_{5/2}$	−.06	--
(2)	7027.14	14226.61	-----	$231_{5/2}-3738_{5/2}$	+.01	23
7	7028.47	14223.92	-----	$280_{5/2}-4225_{3/2}$	+.05	--
10	7058.24	14163.92	-----	$278_{3/2}-4199_{1/2}$	+.01	--
6	7059.98	14160.43	-----	$266_{5/2}-4082_{5/2}$	+.03	--
3	7065.39	14149.59	-----	$298_{5/2}-4394_{5/2}$	−.01	--
10	7066.47	14147.43	-----	$266_{5/2}-4080_{3/2}$	+.01	--
(10)	7129.25	14022.85	-----	$271_{7/2}-4116_{7/2}$	+.07	30
(1)	7139.64	14002.45	-----	$272_{9/2}-4116_{7/2}$	−.11	23
10	7172.20	13938.87	-----	$275_{9/2}-4145_{9/2}$	.00	--
4	7198.25	13888.44	-----	$333_{11/2}-4720_{9/2}$	−.04	--
20	7228.03	13831.22	-----	$197_{1/2}-3358_{3/2}$	+.01	--
3	7233.90	13820.00	-----	$332_{5/2}-4710_{5/2}$	+.04	--
4l	7237.26	13813.56	-----	$280_{5/2}-4184_{7/2}$	+.03	--
150	7246.49	13795.97	-----	$150_{7/2}-2885_{5/2}$	−.02	--
100	7246.80	13795.38	-----	$261_{3/2}-3992_{3/2}$	+.20	--
4	7263.86	13762.99	-----	$221_{9/2}-3592_{9/2}$	+.01	--
150	7273.84	13744.11	-----	$2885_{5/2}-4259_{7/2}$	+.02	--
300	7292.72	13708.52	-----	$2888_{7/2}-4259_{7/2}$	−.03	--
5	7307.55	13680.71	-----	$271_{7/2}-4082_{5/2}$	+.01	--
(4)	7316.1	13664.7	-----	$305_{11/2}-4422_{9/2}$	.0	31
(2)	7318.02	13661.13	-----	$314_{3/2}-4512_{3/2}$	−.06	31
7	7324.20	13649.60	-----	$275_{9/2}-4116_{7/2}$	.00	--
(1)	7346.88	13607.47	-----	$298_{5/2}-4340_{7/2}$	−.02	31
50	7352.04	13597.91	-----	$285_{7/2}-4214_{9/2}$	−.02	--
(2)	7362.12	13579.30	-----	$306_{9/2}-4422_{9/2}$	+.05	31
3	7382.67	13541.51	-----	$298_{5/2}-4334_{3/2}$	−.02	--
1	7384.07	13538.94	-----	$261_{5/2}-3967_{5/2}$	−.01	--
20	7386.35	13534.74	-----	$338_{7/2}-4735_{7/2}$	+.04	--
4	7390.71	13526.76	-----	$280_{5/2}-4155_{3/2}$	.00	--
2	7396.04	13517.02	-----	$4414_{3/2}-5766_{3/2}$	+.04	--
3h	7404.28	13501.98	-----	{ $324_{5/2}-4593_{7/2}$ { $313_{9/2}-4490_{7/2}$	−.06 +.13	-- --
20	7409.46	13492.54	-----	$217_{7/2}-3526_{5/2}$	.00	--
(2)	7413.41	13485.35	-----	$278_{3/2}-4131_{5/2}$	−.02	31
3	7416.44	13479.85	-----	$319_{7/2}-4546_{7/2}$	+.01	--
2	7431.93	13451.74	-----	$332_{5/2}-4673_{3/2}$	+.01	--
2	7437.79	13441.14	-----	$324_{5/2}-4587_{3/2}$	−.06	--
1	7442.75	13432.19	-----	$275_{9/2}-4094_{7/2}$	−.03	--
(1)	7446.97	13424.58	-----	$273'_{1/2}-4080_{3/2}$	+.13	31
4	7447.58	13423.48	-----	{ $273''_{1/2}-4080_{3/2}$ { $304_{3/2}-4394_{5/2}$	−.17 +.10	-- --
5	7478.63	13367.75	-----	$332_{5/2}-4664_{5/2}$	−.02	--
7	7481.15	13363.24	-----	$270_{13/2}-4049_{13/2}$	+.04	--
(1)	7482.62	13360.62	-----	$319_{7/2}-4534_{9/2}$	+.04	31
3	7488.12	13350.81	-----	$306_{9/2}-4399_{11/2}$	−.16	--
2	7489.10	13349.06	-----	$319_{7/2}-4533_{5/2}$	+.02	--
2	7494.02	13340.30	-----	$244_{5/2}-3776_{7/2}$	+.05	--
10H	7524.48	13286.29	-----	$4508_{11/2}-5836_{9/2}$	+.02	--
3	7526.49	13282.75	-----	$280_{5/2}-4131_{5/2}$	+.05	--
2	7536.40	13265.27	-----	$266_{5/2}-3992_{3/2}$	−.05	--
(1)	7539.73	13259.42	-----	$314_{3/2}-4472_{3/2}$	−.05	31
5	7545.39	13249.47	-----	$273_{11/2}-4049_{13/2}$	+.01	--
30	7548.72	13243.62	-----	$298_{5/2}-4304_{5/2}$	−.02	--
6	7567.80	13210.24	-----	$301_{1/2}-4334_{3/2}$	−.04	--
300	7578.73	13191.18	-----	$157_{5/2}-2896_{3/2}$	+.05	--
10	7583.26	13183.30	-----	$266_{5/2}-3984_{7/2}$	−.02	--
(2)	7587.66	13175.66	-----	$304_{3/2}-4370_{3/2}$	+.06	31
100	7611.89	13133.71	-----	{ $194_{5/2}-3259_{3/2}$ { $280_{5/2}-4116_{7/2}$	−.03 +.12	-- --
(3)	7618.32	13122.64	-----	$311_{5/2}-4430_{5/2}$	−.01	31
200	7620.25	13119.31	-----	$157_{5/2}-2888_{7/2}$	+.01	--
400	7640.94	13083.79	-----	$157_{5/2}-2885_{5/2}$	+.03	--
7	7656.80	13056.68	-----	$333_{11/2}-4637_{9/2}$	.00	--
2	7683.45	13011.39	-----	$341_{9/2}-4720_{9/2}$	−.07	--
3	7684.83	13009.06	-----	$266_{5/2}-3967_{5/2}$	−.03	--
10	7693.70	12994.06	-----	$278_{3/2}-4082_{5/2}$	−.12	--
30	7705.92	12973.46	-----	$247_{7/2}-3769_{5/2}$	+.02	--
2	7712.58	12962.26	-----	$311_{5/2}-4414_{3/2}$	−.11	--
(1)	7716.52	12955.64	-----	$314_{3/2}-4441_{1/2}$	−.07	31
30	7733.61	12927.01	-----	$204_{3/2}-3340_{5/2}$	+.01	--
(2)	7738.92	12918.14	-----	$319_{7/2}-4490_{7/2}$	−.02	31
5	7743.08	12911.20	-----	$285_{7/2}-4145_{9/2}$	+.15	--
(2)	7781.21	12847.93	-----	{ $314_{3/2}-4430_{5/2}$ { $263_{13/2}-3919_{11/2}$	−.20 } +.15 }	31
7	7789.75	12833.85	-----	$332_{5/2}-2044_{7/2}$	.0	--
10	7789.96	12833.51	-----	$197_{1/2}-3259_{3/2}$	−.21	--
5	7794.67	12825.74	-----	$338_{7/2}-4664_{5/2}$	+.02	--
4	7801.05	12815.25	-----	$304_{3/2}-4334_{3/2}$	.00	--
10	7828.13	12770.93	-----	$285_{7/2}-4131_{5/2}$	+.04	--
10	7844.14	12744.86	-----	$217_{7/2}-3452_{7/2}$	+.01	--
100	7869.62	12703.59	-----	$271_{7/2}-3984_{7/2}$	−.03	--
3	7880.78	12685.60	-----	$197_{1/2}-3244_{1/2}$	−.10	--
20	7882.11	12683.46	-----	$272_{9/2}-3984_{7/2}$	+.06	--
9	7888.90	12672.55	-----	$273_{11/2}-3991_{11/2}$	+.04	--
40	7898.46	12657.21	-----	$247_{7/2}-3738_{5/2}$	+.02	--
400	7912.94	12634.04	-----	$164_{3/2}-2896_{3/2}$	.00	--
20	7970.87	12542.23	-----	$273'_{1/2}-3992_{3/2}$	−.12	--
30	7971.24	12541.65	-----	$273''_{1/2}-3992_{3/2}$	+.10	--
10	7979.03	12529.39	-----	{ $271_{7/2}-3967_{5/2}$ { $338_{7/2}-4635_{7/2}$	.00 +.06	-- --
300	7980.77	12526.66	-----	$164_{3/2}-2885_{5/2}$	−.01	--
4	8004.63	12489.33	-----	$314_{3/2}-4394_{5/2}$	−.03	--
4	8027.50	12453.74	-----	$298_{5/2}-4225_{3/2}$	−.07	--
10	8052.11	12415.68	-----	$313_{9/2}-4381_{7/2}$	−.03	--
30	8060.10	12403.37	-----	$266_{5/2}-3906_{5/2}$	−.12	--
15	8088.27	12360.19	-----	$221_{9/2}-3452_{7/2}$	−.02	--
(1)	8141.2	12279.8	-----	$285_{7/2}-4082_{5/2}$	+.1	31
6	8166.63	12241.58	-----	{ $319_{7/2}-4422_{9/2}$ { $314_{3/2}-4370_{3/2}$	−.01 .00	-- --
3	8224.31	12155.73	-----	$311_{5/2}-4334_{3/2}$	−.04	--
4	8246.93	12122.38	-----	$301_{1/2}-4225_{3/2}$	−.24	--
2	8253.24	12113.12	-----	$231_{5/2}-3526_{5/2}$	−.01	--
(4)	8254.0	12112.0	-----	$3259_{3/2}-4470_{5/2}$	+.3	31
(3)	8256.25	12108.71	-----	$314_{3/2}-4356_{5/2}$	−.03	31
5	8262.72	12099.22	-----	$278_{3/2}-3992_{3/2}$	+.12	--
(3)	8285.13	12066.50	-----	$270_{13/2}-3919_{11/2}$	−.10	31
20	8293.73	12053.98	-----	$313_{9/2}-4345_{9/2}$	−.02	--
20	8301.01	12043.41	-----	$298_{5/2}-4184_{7/2}$	−.06	--
(5)	8313.02	12026.02	-----	$333_{11/2}-4534_{9/2}$	+.02	31
3	8335.44	11993.67	-----	$3899_{9/2}-5098_{7/2}$	−.07	--
2	8354.00	11967.01	-----	{ $239_{11/2}-3592_{9/2}$ { $319_{7/2}-4394_{5/2}$	−.01 +.02	-- --
40	8357.58	11961.89	-----	$204_{3/2}-3244_{1/2}$	+.01	--
3	8403.58	11896.42	-----	$280_{5/2}-3992_{3/2}$	−.01	--
500	8417.13	11877.27	-----	$117_{9/2}-2363_{9/2}$	−.03	--
(2)	8430.87	11857.91	-----	$311_{5/2}-4304_{5/2}$	−.03	31
(4)	8433.90	11853.65	-----	$271_{7/2}-3899_{9/2}$	+.05	31
3	8503.35	11756.83	-----	$298_{5/2}-4155_{3/2}$	+.13	--
6	8507.73	11750.78	-----	$273_{11/2}-3899_{9/2}$	−.07	--
(2)	8513.44	11742.90	-----	$341_{9/2}-4593_{7/2}$	.00	31
(1)	8524.64	11727.48	-----	$304_{3/2}-4225_{3/2}$	−.11	31
500	8527.73	11723.23	-----	$172_{1/2}-2896_{3/2}$	−.02	--
(3)	8534.99	11713.26	-----	$324_{5/2}-4414_{3/2}$	−.05	31
2	8537.38	11709.97	-----	$341_{9/2}-4590_{11/2}$	−.01	--
(4)	8554.61	11686.39	-----	$4637_{9/2}-5806_{7/2}$	.00	31
(2)	8557.50	11682.45	-----	$275_{9/2}-3919_{11/2}$	+.02	31
15	8570.69	11664.47	-----	$332_{5/2}-4494_{7/2}$	.00	--
5	8588.50	11640.27	-----	$280_{5/2}-3967_{5/2}$	+.07	--
5	8593.60	11633.37	-----	$217_{7/2}-3340_{5/2}$	+.04	--
5H	8628.44	11586.39	-----	$319_{7/2}-4356_{5/2}$	+.02	--
7H	8630.60	11583.49	-----	$314_{3/2}-4304_{5/2}$	+.09	--
(3)	8633.10	11580.15	-----	$305_{11/2}-4214_{9/2}$	.00	31
20	8643.59	11566.09	-----	$261_{5/2}-3769_{5/2}$	.00	--
20	8648.98	11558.87	-----	$173_{7/2}-2888_{7/2}$	−.03	--
40	8675.65	11523.35	-----	$173_{7/2}-2885_{5/2}$	−.01	--
10	8683.74	11512.60	-----	$298_{5/2}-4131_{5/2}$	−.04	--

TABLE 2. *Classified lines of* Re I—Continued

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
1	8686.94	11508.36	----------------	$338_{7/2}-\mathit{4533}_{5/2}$	−.01	--
20	8697.25	11494.72	----------------	$306_{9/2}-\mathit{4214}_{9/2}$	−.01	--
(2)	8715.7	11470.4	----------------	$319_{7/2}-\mathit{4345}_{9/2}$	+.1	31
(6)	8721.64	11462.59	----------------	$\mathit{3259}_{3/2}-4405_{5/2}$	+.01	31
3h	8750.44	11424.86	----------------	$319_{7/2}-\mathit{4340}_{7/2}$	−.02	--
30	8797.70	11363.48	----------------	$298_{5/2}-\mathit{4116}_{7/2}$	−.05	--
3	8845.23	11302.42	----------------	$285_{7/2}-\mathit{3984}_{7/2}$	−.20	--
3	8851.32	11294.64	----------------	$\mathit{3340}_{5/2}-4470_{5/2}$	.00	--
1	8871.82	11268.54	----------------	$341_{9/2}-\mathit{4546}_{7/2}$	−.02	--
15	8882.95	11254.43	----------------	$266_{5/2}-\mathit{3791}_{3/2}$	−.01	--
15	8886.58	11249.83	----------------	$261_{5/2}-\mathit{3738}_{5/2}$	−.01	--
5	8927.28	11198.54	----------------	$306_{9/2}-\mathit{4184}_{7/2}$	+.02	--
7	8966.63	11149.40	----------------	$\mathit{3984}_{7/2}-5099_{9/2}$ $341_{9/2}-\mathit{4534}_{9/2}$	.00 +.10	-- --
4	8969.21	11146.19	----------------	$298_{5/2}-\mathit{4094}_{7/2}$	+.04	--
2	8971.14	11143.79	----------------	$\mathit{3984}_{7/2}-5098_{7/2}$	+.09	--
1	8983.55	11128.39	----------------	$\mathit{3984}_{7/2}-5097_{5/2}$ $285_{7/2}-\mathit{3967}_{5/2}$	−.03 .00	-- --
2	8988.40	11122.39	----------------	$338_{7/2}-\mathit{4494}_{7/2}$	−.07	--
1	8995.26	11113.91	----------------	$285_{7/2}-\mathit{3965}_{9/2}$ $\mathit{3992}_{3/2}-5103_{3/2}$	+.05 +.08	-- --
1	9003.24	11104.06	----------------	$266_{5/2}-\mathit{3776}_{5/2}$	−.16	--
1	9018.9	11084.75	----------------	$\mathit{4818}_{7/2}-5926_{5/2}$	+.16	--
3	9032.46	11068.14	----------------	$311_{5/2}-\mathit{4225}_{3/2}$	+.03	--
3	9058.53	11036.28	----------------	$266_{5/2}-\mathit{3769}_{5/2}$	+.05	--
4	9059.85	11034.67	----------------	$280_{5/2}-\mathit{3906}_{5/2}$	+.07	--
5	9070.74	11021.43	----------------	$298_{5/2}-\mathit{4082}_{5/2}$	−.02	--
4	9081.45	11008.43	----------------	$298_{5/2}-\mathit{4080}_{3/2}$	−.04	--
2	9083.03	11006.52	----------------	$275_{9/2}-\mathit{3852}_{7/2}$	+.09	--
6	9144.86	10932.10	----------------	$261_{5/2}-\mathit{3706}_{3/2}$ $\mathit{4673}_{3/2}-5766_{3/2}$	+.02 +.05	-- --
2	9205.12	10860.53	----------------	$288_{7/2}-\mathit{3967}_{5/2}$	−.12	--
1	9220.40	10842.54	----------------	$244_{5/2}-\mathit{3526}_{5/2}$	.00	--
10	9250.02	10807.81	----------------	$306_{9/2}-\mathit{4145}_{9/2}$	−.04	--
4	9262.28	10793.51	----------------	$314_{3/2}-\mathit{4225}_{3/2}$	−.06	--
15	9268.46	10786.32	----------------	$304_{3/2}-\mathit{4131}_{5/2}$	−.10	--
1	9298.07	10751.97	----------------	$341_{9/2}-\mathit{4494}_{7/2}$	+.12	--
1	9307.72	10740.82	----------------	$313_{9/2}-\mathit{4214}_{9/2}$	+.06	--
3	9325.90	10719.88	----------------	$266_{5/2}-\mathit{3738}_{5/2}$	−.10	--
20	9363.13	10677.25	----------------	$301_{1/2}-\mathit{4080}_{3/2}$	−.03	--
2	9370.87	10668.44	----------------	$332_{5/2}-\mathit{4394}_{5/2}$	+.11	--
10	9380.24	10657.78	----------------	$311_{5/2}-\mathit{4184}_{7/2}$	+.01	--
2	9391.12	10645.43	----------------	$\mathit{3340}_{5/2}-4405_{5/2}$	−.05	--
15	9423.45	10608.90	----------------	$324_{5/2}-\mathit{4304}_{5/2}$	+.02	--
3	9427.53	10604.31	----------------	$272_{9/2}-\mathit{3776}_{7/2}$	+.01	--
30	9470.15	10556.59	----------------	$271_{7/2}-\mathit{3769}_{5/2}$	+.06	--
1	9481.6	10543.85	----------------	$247_{7/2}-\mathit{3526}_{5/2}$	+.13	--
8	9500.49	10522.88	----------------	$285_{7/2}-\mathit{3906}_{5/2}$	+.09	--
3	9504.34	10518.62	----------------	$306_{9/2}-\mathit{4116}_{7/2}$	+.04	--
6	9571.75	10444.54	----------------	$313_{9/2}-\mathit{4184}_{7/2}$	−.01	--
8	9581.12	10434.32	----------------	$231_{5/2}-\mathit{3358}_{3/2}$	+.01	--
1	9600.98	10412.75	----------------	$273''_{1/2}-\mathit{3779}_{1/2}$	.00	--
3	9704.94	10301.20	----------------	$306_{9/2}-\mathit{4094}_{7/2}$	.00	--
50	9710.52	10295.28	----------------	$304_{3/2}-\mathit{4082}_{5/2}$	+.05	--
4	9722.76	10282.32	----------------	$304_{3/2}-\mathit{4080}_{3/2}$	+.07	--
3	9748.60	10255.07	----------------	$288_{7/2}-\mathit{3906}_{5/2}$	+.02	--

Int.	λ_{vac}	σ_{vac}	Zeeman effect	Transition	O–C	Notes
	A	*K*				
6	9749.66	10253.95	----------------	$231_{5/2}-\mathit{3340}_{5/2}$	+.03	--
4	9752.08	10251.41	----------------	$275_{9/2}-\mathit{3776}_{7/2}$	+.07	--
20	9762.65	10240.30	----------------	$271_{7/2}-\mathit{3738}_{5/2}$	+.02	--
9	9831.35	10168.75	----------------	$224_{3/2}-\mathit{3259}_{3/2}$	−.05	--
20	9842.65	10157.07	----------------	$319_{7/2}-\mathit{4214}_{9/2}$	.00	--
15sd	9872.38	10126.48	----------------	$298_{5/2}-\mathit{3992}_{3/2}$	+.11	--
1	9901.72	10096.48	----------------	$314_{3/2}-\mathit{4155}_{3/2}$	+.02	--
5	9903.30	10094.87	----------------	$244_{5/2}-\mathit{3452}_{7/2}$	+.02	--
4	9908.97	10089.09	----------------	$\mathit{4094}_{7/2}-5104_{5/2}$	+.06	--
1	9937.8	10059.9	----------------	$332_{5/2}-\mathit{4334}_{3/2}$	−.3	--
20	9943.70	10053.85	----------------	$313_{9/2}-\mathit{4145}_{9/2}$	−.03	--
200	9949.90	10047.59	----------------	$\mathit{4094}_{7/2}-5099_{9/2}$	−.03	--
3	9953.02	10044.44	----------------	$298_{5/2}-\mathit{3984}_{7/2}$	+.07	--
60	9955.45	10041.99	----------------	$\mathit{4094}_{7/2}-5098_{7/2}$	+.05	--
2	9964.90	10032.47	----------------	$\mathit{4405}_{5/2}-5408_{7/2}$	+.01	--
1	9970.87	10026.46	----------------	$\mathit{4094}_{7/2}-5097_{5/2}$	−.18	--
4	9976.45	10020.85	----------------	$224_{3/2}-\mathit{3244}_{1/2}$	+.07	--
7	10019.21	9978.09	----------------	$311_{5/2}-\mathit{4116}_{7/2}$	+.26	--
5	10026.96	9970.38	----------------	$278_{3/2}-\mathit{3779}_{1/2}$	+.08	--
2	10064.02	9933.66	----------------	$305_{11/2}-\mathit{4049}_{13/2}$	+.23	--
1	10127.21	9871.68	----------------	$\mathit{4116}_{7/2}-5104_{5/2}$	+.03	--
15	10128.78	9870.15	----------------	$298_{5/2}-\mathit{3967}_{5/2}$	+.01	--
2	10138.24	9860.94	----------------	$319_{7/2}-\mathit{4184}_{7/2}$	+.08	--
1	10146.84	9852.59	----------------	$314_{3/2}-\mathit{4131}_{5/2}$	+.19	--
100	10169.85	9830.29	----------------	$\mathit{4116}_{7/2}-5099_{9/2}$	+.05	--
20	10175.68	9824.66	----------------	$\mathit{4116}_{7/2}-5098_{7/2}$	+.10	--
1	10191.57	9809.35	----------------	$\mathit{4116}_{7/2}-5097_{5/2}$	+.09	--
2	10201.86	9799.44	----------------	$\mathit{4856}_{11/2}-5836_{9/2}$	+.17	--
20	10206.32	9795.16	----------------	$301_{1/2}-\mathit{3992}_{3/2}$	−.02	--
4	10238.26	9764.60	----------------	$313_{9/2}-\mathit{4116}_{7/2}$	−.01	--
1	10242.68	9760.39	----------------	$311_{5/2}-\mathit{4094}_{7/2}$	−.06	--
5	10282.46	9722.63	----------------	$\mathit{4131}_{5/2}-5104_{5/2}$	+.09	--
4	10287.58	9717.80	----------------	$\mathit{4131}_{5/2}-5103_{3/2}$	+.09	--
10	10332.55	9675.50	----------------	$\mathit{4131}_{5/2}-5098_{7/2}$	+.05	--
1	10341.3	9667.4	----------------	$280_{5/2}-\mathit{3769}_{5/2}$	+.1	--
4	10349.0	9660.16	----------------	$\mathit{4131}_{5/2}-5097_{5/2}$	+.01	--
10	10464.25	9553.73	----------------	$278_{3/2}-\mathit{3738}_{5/2}$	−.03	--
20	10556.54	9470.21	----------------	$319_{7/2}-\mathit{4145}_{9/2}$	+.02	--
2	10593.74	9436.95	----------------	$231_{5/2}-\mathit{3259}_{3/2}$	+.13	--
8	19599.31	9432.00	----------------	$194_{5/2}-\mathit{2888}_{7/2}$	+.17	--
40	10618.45	9414.99	----------------	$142_{7/2}-\mathit{2363}_{9/2}$	+.03	--
8	10625.57	9408.68	----------------	$324_{5/2}-\mathit{4184}_{7/2}$	−.03	--
100	10639.45	9396.40	----------------	$194_{5/2}-\mathit{2885}_{5/2}$	+.11	--
10	10824.22	9236.01	----------------	$278_{3/2}-\mathit{3706}_{3/2}$	+.01	--
10	10862.25	9203.67	----------------	$197_{1/2}-\mathit{2896}_{3/2}$	+.03	--
1	10909.5	9163.8	----------------	$244_{5/2}-\mathit{3358}_{3/2}$	+.1	--
1	10919.30	9155.59	----------------	$285_{7/2}-\mathit{3769}_{5/2}$	+.06	--
2	10933.44	9143.74	----------------	$304_{3/2}-\mathit{3967}_{5/2}$	−.18	--
3	10942.23	9136.40	----------------	$261_{5/2}-\mathit{3526}_{5/2}$	+.03	--
2	11065.02	9035.02	----------------	$\mathit{4470}_{5/2}-5373_{7/2}$ $\mathit{5035}_{7/2}-5939_{9/2}$	−.07 −.04	-- --
1	11141.90	8972.67	----------------	$332_{5/2}-\mathit{4225}_{3/2}$	+.13	--
4	11309.97	8839.33	----------------	$285_{7/2}-\mathit{3738}_{5/2}$	+.05	--
8	11383.70	8782.08	----------------	$271_{7/2}-\mathit{3592}_{9/2}$	+.19	--
3	11453.12	8728.85	----------------	$324_{5/2}-\mathit{4116}_{7/2}$	+.08	--
1	11615.8	8606.6	----------------	$266_{5/2}-\mathit{3526}_{5/2}$	+.1	--

NOTES

1. Wavelength and intensity taken from R. Velasco, Anales real soc. espan. fis. y quim. Madrid **48**, 55 (1952).
2. From here (unless stated otherwise), all wavelengths and intensities have been taken from W. F. Meggers, J. Research NBS **49**, 187 (1952) RP2355; the intensities apply to the arc observations, and all details concerning line complexity due to hyperfine structure have been omitted.
3. Wavelength and intensity taken from MIT Wavelength Tables.
4. Observed only in spark by Meggers, but according to the MIT Wavelength Tables, the line belongs to the arc spectrum. The intensity given applies to the spark.
5. Enhanced in spark.
6. The indicated self-reversal is an apparent one. The analysis shows that actually a close doublet is formed by two different transitions.
7. Intensity from spark spectrum; not observed in the arc.
8. The wavelength given in the MIT Wavelength Tables fits appreciably better to the combination given (departure 0.3 K); the observed σ-component is in harmony with classification, the observed π-component is only badly accounted for.
9. Observed Zeeman effect in agreement only with second transition.
10. Observed π-pattern in disagreement with classification.
11. Observed σ-pattern in disagreement with classification.
12. σ-pattern perturbed.
13. Wavelength and intensity taken from spark observations made at the Zeeman Laboratory.
14. Probably there is a second line at this place.
15. The π-pattern and the strongest σ-component observed are in disagreement with classification.
16. Observed Zeeman effect in agreement with *both* transitions.
17. Paschen-Back interaction between levels *4080* and *4081*.
18. Paschen-Back interaction between levels *5034* and *5035*.
19. Observed Zeeman effect not consistent with classification.
20. Zeeman effect suggests that levels 273′ and 273″ are hyperfine components of the same level.
21. Paschen-Back interaction between levels *5103* and *5104*.
22. Observed Zeeman effect in agreement only with first transition.
23. Wavelength and intensity taken from W. F. Meggers, BS J. Research **6**, 1027 (1931) RP322.
24. In the MIT Wavelength Tables only one line is recorded with a wavelength intermediate between the two wavelengths given in Meggers' 1952 paper. The doubling is probably caused by hyperfine structure.
25. π-pattern in agreement with first combination. For the second combination no g-values are known.
26. Paschen-Back effect.
27. Apparent doubling caused by hyperfine structure; comp. note 24.
28. In the MIT Wavelength Tables, only one line is recorded here. The doubling is a common feature of the combinations of $4470_{5/2}$ $(=(5d^5\,6s\,7s)\ {}^6S_{5/2})$; see text.
29. Wavelength taken from Meggers' 1931 paper. The MIT Wavelength Tables also give a single line, whereas in Meggers' 1952 table two lines (with intensities 150 and 100) have been recorded which are situated at approximately equal distances from the calculated position. The doubling may be due to hyperfine structure.
30. Wavelength and intensity taken from the MIT Wavelength Tables. Meggers' 1931 table gives a single line also, whereas in his 1952 table a doublet is recorded, just as for 6605 A (see note 29).
31. Wavelength and intensity taken from W. F. Meggers, BS J. Research **10**, 757 (1933) RP564.

TABLE 3. *Unclassified* Re I *lines of intensity 50 or more*

Intensity	Wavelength	Intensity	Wavelength
	A		A
50r	2077. 280	100R	2344. 776
100R	2109. 22	50r	2365. 316
50	2187. 77	100r	2388. 569
50	2196. 72	50	2397. 31
50	2205. 15	100r	2404. 340
300r	2214. 58	60r	2406. 695
50	2226. 87	50r	2431. 538
50	2242. 66	100	2444. 09
50	2249. 51	50R	2611. 536
50	2253. 94	60	2722. 206
50	2271. 04	50	2982. 188
50	2285. 30	50	4251. 35
50	2290. 715	100	6751. 22

TABLE 4. *Electron configurations and spectral terms of* Re I

Config.	Desig.	J	Level	Interval	Obs. g
$5d^5\,6s^2$	$a\,^6\mathrm{S}$	2½	0. 00		1. 950
$5d^5\,6s^2$	$a\,^4\mathrm{P}$	2½	11583. 96	−2242. 16	1. 278
		1½	13826. 12	−1339. 77	1. 485
		0½	15165. 89		2. 368
$5d^6(^5\mathrm{D})6s$	$a\,^6\mathrm{D}$	4½	11754. 52	−2462. 34	1. 545
		3½	14216. 86	−1553. 56	1. 567
		2½	15770. 42	−557. 09	1. 309
		1½	16327. 51	−910. 79	1. 706
		0½	17238. 30		2. 521
$5d^5\,6s^2$	$a\,^4\mathrm{G}$	2½	14621. 46	436. 73	1. 151
		3½	15058. 19	1561. 09	1. 153
		4½	16619. 28	−312. 13	1. 175
		5½	16307. 15		1. 242
$5d^5\,6s^2$	$a\,^4\mathrm{D}$	3½	17330. 82	−2127. 07	1. 255
		2½	19457. 89	−1023. 84	1. 361
		1½	20481. 73	723. 82	1. 451
		0½	19757. 91		0. 983
$5d^5\,6s(a\,^7\mathrm{S})6p$	$z\,^8\mathrm{P}^\circ$	2½	*18950. 1*	1497. 7	2. 274
		3½	*20447. 8*	3184. 0	1. 926
		4½	*23631. 82*		1. 768
$5d^5\,6s^2$	$a\,^2\mathrm{F}$	3½	21775. 40	−2650. 00	1. 135
		2½	24425. 40		1. 067
$5d^5\,6s^2$	$a\,^2\mathrm{G}$	4½	22160. 04	−2564. 18	1. 198
		3½	24724. 22		1. 03
$5d^5\,6s^2$	$a\,^2\mathrm{D}$	1½	22422. 83	731. 98	0. 781
		2½	23154. 81		1. 189
$5d^5\,6s^2$	$a\,^2\mathrm{I}$	5½	23956. 00	2392. 96	0. 995
		6½	26348. 96		1. 100
$5d^5\,6s^2$	$a\,^4\mathrm{F}$	1½	26131. 57	1898. 75	0. 650
		2½	28030. 32	511. 81	1. 12
		3½	28542. 13	−1027. 82	
		4½	27514. 31		1. 13
$5d^6(^3\mathrm{P})6s$	$b\,^4\mathrm{P}$	2½	26661. 43	−3865. 17	1. 32
		1½	30526. 60		
		0½			
$5d^6(^3\mathrm{H})6s$	$a\,^4\mathrm{H}$	6½	27130. 14	113. 74	1. 208
		5½	27243. 88	82. 53	1. 18
		4½	27161. 35	1648. 52	
		3½	28809. 87		0. 93
$5d^6(^5\mathrm{D})6s$	$b\,^4\mathrm{D}$	3½	27141. 13	−2659. 25	1. 34
		2½	29800. 38	1972. 73	1. 17
		1½	27827. 65	442. 85	0. 888
		0½	27384. 80		. 072
$5d^5\,6s(a\,^7\mathrm{S})6p$	$z\,^6\mathrm{P}^\circ$	3½	*28889. 72*	35. 54	1. 709
		2½	*28854. 18*	−107. 37	1. 871
		1½	*28961. 55*		2. 333
$5d^5\,6s^2$	$a\,^2\mathrm{S}$	0½	30131. 57		
$5d^5\,6s^2$	$a\,^2\mathrm{H}$	5½	30559. 91	−839. 39	1. 07
		4½	31399. 30		
$5d^6(^3\mathrm{F})6s$	$b\,^4\mathrm{F}$	1½	31460. 62	−274. 54	
		2½	31186. 08		1. 17
		3½			
		4½	30645. 33		
$5d^5\,6s^2$	$b\,^2\mathrm{F}$	3½	31982. 99	−452. 15	
		2½	32435. 14		
$5d^4\,6s^2(a\,^5\mathrm{D})6p$	$z\,^6\mathrm{D}^\circ$	0½	*32443. 61*	148. 02	
		1½	*32591. 63*	817. 10	1. 762
		2½	*33408. 73*	1111. 52	1. 500
		3½	*34520. 25*	1402. 77	1. 454
		4½	*35923. 02*		1. 440
$5d^5(^3\mathrm{G})6s$	$b\,^2\mathrm{G}^\circ$	2½	33281. 65	542. 01	
		3½	33823. 66	370. 61	
		4½	34194. 27	−876. 70	
		5½	33317. 57		
$5d^4\,6s^2(^5\mathrm{D})6p$	$y\,^6\mathrm{P}^\circ$	1½	*33589. 12*		2. 335
		2½			
		3½			
$5d^5\,6s(a\,^5\mathrm{S})6p$	$z\,^4\mathrm{P}^\circ$	2½	*35267. 94*	−2647. 93	1. 385
		1½	*37915. 87*	117. 92	1. 495
		0½	*37797. 95*		2. 620
$5d^5\,6s(a\,^5\mathrm{G})6p$	$z\,^6\mathrm{G}^\circ$	1½	*37063. 65*	317. 76	0. 626
		2½	*37381. 41*	1139. 33	. 990
		3½	*38520. 74*	473. 99	1. 216
		4½	*38994. 73*	921. 66	1. 25
		5½	*39916. 39*	576. 95	1. 314
		6½	*40493. 34*		1. 364
$5d^4\,6s^2(a\,^5\mathrm{D})6p$	$z\,^6\mathrm{F}^\circ$	0½	*37381. 41*	2545. 34	
		1½	*39926. 75*	−861. 83	0. 745
		2½	*39064. 92*	−1299. 27	1. 335
		3½	*37765. 65*	1890. 34	1. 335
		4½	*39655. 99*	−459. 25	1. 444
		5½	*39196. 74*		1. 405
		2½	*37697. 66*		1. 219
		2½	*39670. 52*		1. 107
$5d^5\,6s(a\,^5\mathrm{S})6p$	$x\,^6\mathrm{P}^\circ$	3½	*39844. 75*	−3724. 61	1. 223
		2½	*43569. 36*	−132. 84	1. 504
		1½	*43702. 20*		1. 962
		1½	*40808. 85*		1. 351
		0½	*40810. 17*		
		2½	*40821. 83*		1. 126
$5d^5\,6s(a\,^5\mathrm{P})6p$	$y\,^6\mathrm{D}^\circ$	4½			
		3½	*40946. 53*	−366. 49	1. 534
		2½	*41313. 02*	−244. 06	1. 278
		1½	*41557. 08*		1. 655
		0½			
		3½	*41163. 91*		1. 325
		4½	*41453. 18*		1. 372
		3½	*41843. 85*		1. 190
$5d^5\,6s(a\,^5\mathrm{P})6p$	$z\,^4\mathrm{D}^\circ$	0½	*41991. 56*	262. 63	0. 61
		1½	*42254. 19*	789. 83	1. 578
		2½	*43044. 02*	363. 85	1. 449
		3½	*43407. 87*		1. 368
		4½	*42140. 06*		1. 249
$5d^5\,6s(a\,^7\mathrm{S})7s$	$e\,^8\mathrm{S}$	3½	42598. 27		1. 957
		1½	*43341. 85*		0. 975
		1½	*43409. 11*		
		4½	*43453. 30*		1. 336
		3½	*43815. 01*		1. 348
		2½	*43949. 98*		1. 385
		5½	*43996. 30*		1. 26
		2½	44054. 21		
		1½	*44148. 45*		1. 573

TABLE 4. *Electron configurations and spectral terms of* Re I—Continued

Config.	Desig.	J	Level	Interval	Obs. g
		4½	*44224.58*		1.244
		2½	*44208.73*		1.223
	^{4}D	0½	*44416.33*		0.15
$5d^5\,6s(a\,^7S)7s$	$e\,^6S$	2½	44703.37		1.866
		1½	*44720.09*		1.330
		3½	*44901.15*		1.253
		2½	44902.60		
		3½	*44946.12*		0.905
$5d^5(^5D)6p$	$y\,^6F^\circ$	5½	*45082.63*	−1291.62	1.40
		4½	*46374.25*	−1558.30	1.341
		3½	*47932.55*	−1090.22	1.31
		2½	*49022.77*	−644.48	1.495
		1½	*49667.25*	−192.28	1.27
		0½	*49859.53*		0.410
		1½	*45121.81*		.674
		2½	*45332.03*		1.088
		4½	*45343.57*		1.131
		3½	*45462.83*		1.300
	$^4P^\circ$	0½	*45817.26*		2.197
		1½	*45876.34*		1.384
		5½	*45904.25*		1.175
		3½	*45937.18*		1.298
		2½	*46112.24*		1.405
		0½	*46141.11*		0.716
		3½	*46352.99*		1.271
		2½	*46509.40*		1.371
		2½	*46649.42*		1.334
		1½	*46733.38*		1.858
		1½	*47004.34*		1.285
		2½	*47101.61*		0.893
		1½	*47172.1*		
		0½	*47172.9*		2.215
		4½	*47205.73*		1.106
		3½	*47358.36*		1.151
		6½	*47506.79*		1.26
		0½	*47664.74*		1.50
		3½	*47669.01*		1.196
		1½	*47703.78*		1.443
		1½	*47779.91*		1.362
		5½	*47859.93*		1.20
		2½	*47899.22*		1.217
		2½	*47970.82*		1.169
		3½	*48184.20*		1.252
		5½	*48569.63*		1.27
		3½	*48786.35*		1.53
		3½	*48857.60*		1.24
		3½	*49027.85*		1.499
		4½	*49170.76*		1.135
		1½	*49250.02*		1.263
		5½	*49286.07*		1.075
		2½	*49540.96*		
		2½	*49573.11*		1.344
		4½	*49582.61*		1.058
		3½	*49863.22*		1.175
		1½	*49895.57*		1.989
		2½	*50110.28*		1.765
		2½	*50158.87*		1.422
		4½	*50196.94*		1.345
		1½	*50263.22*		1.234
		3½	*50310.70*		1.170
$5d\_^56s(a\,^7S6)d$	$e\,^8D$	1½	50332.60	8.02	
		2½	50340.62	18.61	2.027
		3½	50359.23	36.49	1.820
		4½	50395.72	68.62	1.690
		5½	50464.34		1.629
		4½	*50401.01*		1.055
		2½	*50463.80*		1.144
		1½	*50571.02*		0.935
		5½	*50663.51*		1.220
		3½	*50869.00*		1.240
		2½	*50934.18*		1.385
		2½	50973.17		1.489
$5d^5\,6s(a\,^7S)6d$	$e\,^6D$	4½	50994.15	5.68	1.548
		3½	50988.47	−147.09	1.558
		2½	51035.56	4.83	1.546
		1½	51030.73	−19.14	
		0½	51049.87		
		4½	*51027.96*		
		1½	*51183.00*		1.456
		4½	*51193.49*		
		3½	*51229.64*		1.231
		2½	*51477.15*		0.97
		4½	*51486.29*		1.20
		1½	*51578.05*		0.92
		2½	*51590.08*		1.02
		3½	*51647.82*		1.139
		1½	*51874.43*		1.29
		5½	*51945.94*		

Config.	Desig.	J	Level	Interval	Obs. g
		3½	*51955.02*		1.200
		4½	*52001.37*		1.357
		6½	*52122.35*		1.17
		2½	*52218.11*		1.208
		6½	*52227.20*		
		1½	*52278.28*		1.422
		3½	*52373.12*		
		0½	*52469.45*		1.315
		2½	*52472.31*		
		3½	*52610.01*		
		4½	*52741.30*		
		3½	*52857.44*		1.30
		2½	*52881.34*		1.05
		1½	*52951.59*		1.14
		1½	*52954.46*		
		2½	*53058.74*		1.184
		0½	*53125.19*		1.145
		0½	*53288.28*		1.372
		1½	*53293.72*		1.323
		4½	*53320.95*		1.38
		3½	*53335.94*		1.290
		4½	*53379.35*		1.09
		2½	*53389.73*		1.19
$5d^5\,6s(a\,^7S)8s$	^8S	3½	53392.00		
		5½	*53467.57*		1.20
		3½	*53738.46*		1.203
		1½	*53842.53*		1.169
		0½	*53928.90*		1.113
		5½	*53948.73*		1.13
		3½	*54018.19*		0.723
		3½	*54086.69*		1.22
		3½	*54177.25*		1.270
		2½	*54268.18*		1.290
		2½	*54409.61*		1.069
		1½	*54467.40*		1.361
		3½	*54513.84*		
		5½	*54554.61*		
		6½	*54729.52*		
		4½	*54813.12*		1.185
		2½	*54823.02*		1.183
		0½	*54968.85*		1.314
		5½	*55223.85*		1.149
		3½	*55454.48*		1.17
		6½	*55776.51*		1.056
		3½	*55901.20*		1.22
		1½	*55902.01*		0.447
		4½	*55912.42*		1.06
		4½	*56307.97*		
		4½	*56411.22*		
		6½	*56523.41*		
		0½	*56451.87*		1.287
		3½	*56699.41*		1.25
		2½	*56822.75*		
		1½	*56866.06*		0.479
		0½	*57073.31*		.94
		3½	*57090.29*		
		3½	*57172.70*		1.19
		4½	*57280.86*		1.19
		3½	*57371.75*		
		5½	*57391.44*		1.30
		6½	*57452.83*		
		2½	*57524.31*		1.40
		4½	*57656.85*		1.19
$5d^4\,6s^2(a\,^5D)7s$	^6D	0½			
		1½	57665.43	1603.27	
		2½	59268.70	−1208.06	
		3½	58060.64	308.26	
		4½	58368.90		
		1½	*58050.58*		1.111
		3½	*58260.03*		1.43
		4½	*58279.31*		
		2½	*58332.42*		
		1½	*58442.51*		1.32
		0½	*58541.88*		
		5½	*58619.32*		1.165
		1½	*59127.30*		1.20
		2½	*59171.73*		
		1½	*59293.45*		
		4½	*59394.29*		
		5½	*59412.46*		1.15
		3½	*59784.67*		
		3½	*59926.91*		1.100
		2½	*60737.28*		
		2½	*60837.10*		1.22
		5½	*62142.97*		
		3½	*62350.13*		
		3½	*62493.51*		1.17
		5½	*63267.63*		1.135
($^7S_3$)	***Limit*** ------	--------	**63530.**		
		6½	*63772.40*		
		6½	*63934.76*		1.07

WASHINGTON, January 23, 1957.